CASES

OF

DIFFUSE INFLAMMATION

OF THE

CELLULAR TEXTURE;

WITH THE APPEARANCES ON DISSECTION,
AND OBSERVATIONS.

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Mr Lyne

With Compliments from

Author

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HE following Essay was commenced with the view of communicating to the Society a series ases of that dreadful affection, which is a con- t source of danger to ourselves while engaged he study of our profession by dissection, and ch sometimes occurs in our patients, as the di- consequence of one of our most common pre- ptions. But having become convinced, in conse- nce of much reflection on what I have observed, of the perusal of the writings of others, not on-

ly that these cases furnish very valuable materials towards the history of a variety of inflammation of extremely common occurrence, frequently severe, and sometimes fatal, but that it has not been duly noticed and appreciated by systematic writers, I have been induced to attempt to condense and reduce into order all the information connected with the subject which I have been able to procure.

One of the causes retarding the progress of our science is the excessive deference paid to opinions advanced by those who have attained great celebrity in the profession. Hence a fashion prevails even in diseases, or rather in the names affixed to diseases. Those, which were once considered as common, cease to be mentioned, while others recently described for the first time, are soon found to be by no means rare. Thus it is probable, that ever since phlebotomy has been performed, and the seats and effects of disease have been investigated by dissecting the dead body, the same kind of untoward accidents have occasionally happened. Their pathology, however, was not understood. At one period they were indiscriminately ascribed to the prick of a nerve, at another, to a wound of a fascia. After the discovery of the lymphatics, inflammation of that order of vessels was supposed to account for all the phenomena; and since Mr John Hunter's first communication on inflammation of the vein *, many have attributed to that cause alone

* Medical and Philosophical Commentaries by a Society in Edinburgh, vol. iii. 8vo. Edin. 1775. See Medical News, p. 430.

ll the bad consequences observed. But others have aken a less exclusive view of the subject; and I n of opinion with them, that these cases are of arious kinds, but I also think, that the share which diffuse inflammation of the cellular tissue has in ese affections has been still overlooked.

From the perusal of the following cases, every one ust be convinced that the disease was essentially Inflammation, frequently terminating in suppura-on; that the Cellular substance was the tissue chief-, if not solely, affected, and that the extent and rogress of the imflammation warrant the propriety the epithet, Diffuse.

The denomination Diffuse Inflammation of the ellular Substance, is not new; and will be found in rgical writers from the earliest periods. But they ave employed it only accidentally, rather in the scription of other affections, than with a view of signating a peculiar genus of disease.

The difference of inflammation, according as it s a tendency to become limited by the effusion of agulable lymph, or to spread, from this tendency ing deficient, is so great that it has been made e basis of classification in the very able treatise of r James *. On the other hand, the effect of

* Observations on some of the general principles, and on particular Nature and Treatment of the different species of lammations; being, with additions, the substance of an say, to which the Jacksonian Prize for the year 1818 was udged by the Royal College of Surgeons. By J. H. James, rgeon, Exeter, 8vo. London 1821.

the difference of texture of the part inflamed is also so great, that since it was particularly pointed out by Dr C. Smyth, it has perhaps been overrated; and as phlegmon was stated to be the peculiar form of inflammation when seated in the cellular membrane*, the general adoption of his classification appears to me to have been the main reason why the diffuse inflammation of the same texture has not hitherto been the subject of special consideration. Yet it was constantly forcing itself, as it were, upon the notice of the profession; and in the writings of clinical observers frequent allusions are made to the true nature of various affections, which, I think, are referable to it, although described under different appellations. It is very probable, however, that in attempting to enumerate and describe all the varieties of disease which essentially consist in diffuse inflammation of the cellular texture, I may have gone to the opposite extreme, and included some which are of a different nature. But such an error cannot hurt the progress of science, as it may lead to investigation, and the establishment of the truth.

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* Medical Communications, vol. ii. 8vo. London 1790. Of the different kinds, or species, of Inflammation, and of the causes to which those differences may be ascribed. By James Carmichael Smyth, M. D. P. 190.

SECTION I.—CASES.

CASES I. and II.—*From Venesection; fatal, with Dissections.*

These cases occurred in my own practice in the nical wards of the Royal Infirmary, and the re-rkable appearances discovered by attentive exa-nation after death, first suggested those views of e pathology of the disease, which further expe-nce has corroborated.

CASE I.—Hugh Snell, æt. 60, who had been af-ted with diabetes for more than a year, was bled in e Royal Infirmary on the 8th of January 1820, l on the 12th first complained of pain in the ht arm, which was inflamed at the puncture, l a boil on the elbow of the same side, present ce the 6th, was still discharging. A poultice s ordered to be applied; but next day it is orted that he had been totally deprived of p by pain, and that the arm was very much amed, tense and swoln. He was ordered to e immediately a dose of salts; to continue the lication of the poultice; and, as the case was v becoming very serious, the Surgeons of the spital were requested to visit him.

14th.—It is reported that he had slept very little from pain. His arm, on inspection, was very much swoln, both above and below the elbow, with great tension and acute pain, which seems to follow the course of the vein, but no red lines, like those ascribed to inflamed absorbents, were visible. The disease in this report was intentionally said *to seem* to follow the course of the vein, because we were not certain of the observation; and, indeed, if we had not formed a previous opinion that his symptoms were owing to inflammation of the vein, the appearances probably would not have suggested its taking that course. I remember he complained at this time chiefly of the back of the wrist, at the proximal end of the metacarpal bone of the thumb, where it was very much swelled and tense. The disease, in fact, consisted in exquisite pain and very great uniform swelling and tension, from the points of the fingers to the highest part affected. He had also severe headache, and his diabetic symptoms continued. By direction of the surgeon twelve leeches were applied to the elbow, and the warm emollient cataplasms were continued; but in the evening these were exchanged for cold saturnine lotions.

15th.—The leeches had procured some relief from pain, and he slept better during the night. The inflammation of the arm now seemed less, but was advancing towards the shoulder. Pulse 104; fever not high; heat 99°; tongue whitish; drink ℔xxvi.; food ℔i. ʒxii.; urine ℔xxiii.; specific gravity 1033;

ve dejections ℔ii½. Another set of twelve leeches as ordered to be applied to the shoulder, and the old saturnine lotions to be continued.

16th.—Slept none, from pain and swelling affecting the arm from the shoulders to the fingers; complains of headache and faintishness. Pulse 120, strong; tongue clean; *ingesta* ℔xxii. ℥xii.; urine xviii.; specific gravity 1029; complains that his throat is closing. His drink, which hitherto had been lime-water and milk, was exchanged for barley water; and, as he had had no stool, an ounce of an acidulated sulphate of magnesia was ordered.

17th.—Twelve leeches were applied over the pectoral muscles, and the arm has been fomented with warm decoction of poppy heads, but he slept none, and the arm is more swelled. A dark coloured bulla has appeared near the elbow, and there is general vesication of the surface, great œdema of the hand, and tension of the pectoral muscles, extending to the epigastrium. The inflammation has not seemed to follow the course of the vein, but is generally diffused. He complains that his throat is quite closed. Respiration free. Pulse 100, small; heat 97°: tongue very dry. No dejection for two days, which distresses him much. *Ingesta* ℔xiv.; urine ℔xiii.; specific gravity 1023. A laxative enema was prescribed with some wine, but he expired tranquilly soon after the visit.

Dissection.—Forty-six hours after death.—The orifice made by the lancet was yet open, and readily admitted a probe, but there was no inflammation of

the vein, no thickening of its coats, and no effusion into it of coagulable lymph or pus. The cellular structure of the arm was universally gangrenous, distended with sanious fluid, and the muscular fibres dark-coloured, tender, and literally rotten. The gangrene extended over the pectoral muscles of the affected side, and terminated exactly at the mesial line, forming a striking contrast with the healthy flesh of the opposite side. The lungs collapsed naturally, no tubercles, no adhesions; a small polypus was in the right auricle of the heart, in which, and in the commencement of the aorta, there was a slight blush of inflammation. (The blush, here ascribed to inflammation, was more probably the tinging of the tissue, by the contact of blood after death). Nothing peculiar was observed in the kidneys and renal vessels; mesenteric glands soft and cheesy; stomach greatly distended, its coats thickened; spleen blanched, and smaller than usual; liver healthy, gall-bladder empty; omentum pellucid; and a general want of adeps throughout the body, as is usual in diabetic cases.

Case II.—Ann Ralston, æt. 23, who had long suffered from a succession of scrofulous abscesses, was admitted into the Hospital on the 8th of May 1821, for a tense and elastic swelling of the abdomen, with a sense of internal fluctuation. On the 12th, she was reported to be better than she had been for two years, but on the 13th her urine suddenly increased in quantity, and from being scanty,

igh coloured, and having a strong smell as on admission, it had now little colour, and no urinous mell or taste, and its specific gravity was found to e 1036. On evaporation it yielded a saccharine xtract. On the 24th, she was bled from the right rm to ℥xvi., and the serum, as is usual in diabetic ases, was milky.

25th,—Had a good night, her urine ℔xiii.; fluid ood ℔viii., solid ℥xxvii.; pulse 92, skin natural, little thirst, keen appetite. She was directed to take alf an ounce of the infusion of digitalis three times -day. 26th,—Was seized in the night with pain in he bend of the right arm, where she had been led, and with sickness and vomiting, which continued till morning preventing sleep. There is a light blush and some diffused swelling, with great enderness around the incision, and these symptoms re increasing; pulse 120, very full; appetite diminished; thirst great; urine ℔xv.; one dejection veighing ℥viii.; solid food ℥xxi.; fluids ℔x. Ten eeches were ordered to be applied to the arm, followed by cataplasms to encourage the bleeding; and n the evening, the arm was directed to be kept old with solution of acetate of lead; a dose of ulphate of magnesia was also prescribed.

7 *p. m.*—The leech bites are still bleeding reely, salts have not yet operated, pain of arm a ittle increased, but no increase of swelling. Constant sickness, and frequent retching, but only a ittle phlegm was brought up. Pulse 130, full; ongue moist.

27th,—Salts operated five times; had a bad night from pain in the bend of the arm, which is a little more swelled, redness not great, nor can any affection of the veins or lymphatics be perceived. Wound from the lancet seems to be quite healed; finds some relief from the cold lotion, but still retches frequently; fluids taken ℔iii.; no solids; urine ℔iv.; dejections ℔ii.; pulse 112., full and harder; heat 101°; tongue foul, no appetite, thirst moderate. Lotions to be continued, and to be bled from the other arm, if she can bear it, to ℥xxx.

8 *p. m.*—Became very faint after ℥xxv. of blood were taken. Blood very buffy in one vessel, less so in another. No abatement of pain; nausea continues, without retching. Pulse 122, small and soft.

28th,—Had but two hours sleep, in consequence of pain of the arm, which now extends to the shoulder. Arm more swelled, a little ichor is discharged from the lancet-wound, and she complains of numbness around the orifice. Still retches frequently; pulse 118.; heat 101°; skin somewhat moist, tongue dry and white. No appetite, thirst moderate, three dejections, urine scanty and turbid, but without urinous smell. To take 1 gr. opium immediately. To take ℥vi. of port wine daily, and the cold lotion to be continued.

8 *p. m.*—Felt a little easier, and slept after the pill. But the pain is now as bad as ever, and the arm more swelled; pulse 125, small; heat 98°,

two dejections. The pill to be repeated, and cold lotions continued.

29th,—Pill and wine have been taken this morning; had a bad night from continual pain, arm more swollen, with evident redness towards the wrist; and the swelling extends without redness over the upper part of the breast to the sternum and nipple, with great fulness and tenderness. A large vesication on the inner part of the arm, surrounded by a livid margin, arose in the night and broke; skin beneath white, and not sensible to the prick of a needle. Small vesications have also appeared on the arm with partial discoloration; but the lancet-wound is not particularly affected, nor does the disease follow the course of the vein. Fluids taken ℔iii. ℥vi., urine ℔iii. with dense yellow sediment, and to the taste saline, not saccharine. To take two grains of opium immediately, to have ℥viii. of wine daily, and the arm to be dressed with hot dressings and poultices.

8 *p. m.*—Pill and wine taken, and hot dressings applied; has since had less pain and dozes much, but there is no alteration in the appearance of the limb. Tongue white, with bad taste; one scanty dejection; urine scanty.

30th,—Treatment continued through the night, which was bad, but she dozed occasionally; pain of arm not so severe, but complains of soreness of breast. No fresh blisters; those observed yesterday have burst, and the skin beneath is insensible. Arm more swelled towards the axilla, elbow bright

red, but not very painful; lancet-wound of the left arm has healed; thirsty; pulse 120, rather full but not hard; heat 102½°, tongue foul on the back part; great thirst, drink ℔ii. ʒix.; urine ℔i. Twenty leeches were ordered to be applied to the shoulder and breast.

8 *p. m.*—Leeches did not bleed well. Arm as in the morning, but the right breast and axilla much more swelled. Pain very great, increased by respiration rendering her restless during the whole day, countenance very anxious, frequent hiccup; pulse 122, sharp and rather hard; heat 101°; tongue rather foul and moist. One scanty dejection; urine ℔i. To take two grains of opium every second hour, for three times.

31st,—Took ʒviii. of wine, and three grains of opium, and had some short sleeps, and suffered less from pain. Awoke at eight this morning with moaning, which still continues. Pus is discharged from the lancet-wound, and the blistered parts are livid. Arm not more swoln, but the chest and side are soft, with a sense of fluctuation; the veins around the mamma dark-blue; respiration slow and laborious, with cold sweat on the forehead· countenance cadaverous; extremities cold; pulse 120, very small, weak and intermitting; respires only twice in the minute; has had one small dark dejection, and made ℔i. dark cloudy urine. She sunk in the course of the day.

Dissection.—On the 2d of June, at 8 *a. m.*—Externally upon the sternum and under both

lavicles, particularly the right, there was much ivid colour, and many small vesications. Upon he right side, immediately under the ribs, very ex-ensive vesications had arisen, from which the water ad been evacuated, and the cuticle partly removed. The same livid colour and vesications appeared pon the right shoulder, running down the back. Upon removing the integuments from the lancet-vound of the right arm upwards, a considerable quantity of serum was discharged, and some puru-ent matter was found diffused in the cellular mem-rane, which was not destitute of fat. The integu-nents being further removed, the muscles of the rm and chest came into view, which discovered the hief seat of the disease. The *biceps* and *pectoralis major* muscles were nearly black, and in a state pproaching to gangrene; the texture in some places vas so far destroyed, that it could be broken down y the finger; this was particularly remarkable in he *pectoralis major*. The smaller pectoral muscle vas also slightly affected upon its surface.

A probe was then introduced into the vein, which vas laid open as far as the axilla. The vein was found to be perfectly healthy, and appeared not to have participated in the slightest degree in the sur-ounding disease. Its internal surface was white, nd its tunics sound and healthy.

In the thorax nothing morbid was observed.

The abdominal viscera also were healthy, and, with the exception of the kidneys, which were

thought by some to be rather larger than natural, no deviation from healthy structure was observable.

In the heart, a considerable polypus was found in the right side, both in the auricle and ventricle, as well as in the pulmonary artery. In other respects it was quite natural.

CASE III.—*From Venesection, complicated with Inflammation of the Vein; fatal, with Dissection.*

14th April 1821.—Michael Dogherty, æt. 31, labourer, was admitted into Queensberry House Fever-Hospital, under the care of Dr Home and myself, having had in the morning a severe attack of rigors, succeeded by flushing, pain of head, and the usual symptoms of continued fever. Next day, he was bled to ℥xx. in the median cephalic vein. On the 3d day after the bleeding, he had passed a very restless night from pain of arm; the wound had suppurated, and the edges of it were everted with slight surrounding inflammation. On the 5th day, the pain was much increased, and extended from the shoulder to the fingers. There was much inflammation and hardness for three inches above and below the wound, from which pus could be pressed out, mixed with blood; pulse 104, feeble; heat 103½; skin hot and dry, countenance anxious and oppressed. 7th, Inflammation has extended along the arm towards the wrist, as also upwards as high as the middle of the biceps, following the course of

the vein; less discharge from wound; constitutional symptoms continue. 11th day, Inflammation occupied the whole arm, which was much increased in size and œdematous, with great pain on being moved or touched; had a severe rigor last night with delirium; complains of great uneasiness extending across the chest; pulse 112, weak; stools dark, back of hand and wrist swollen and inflamed. 13th, Delirium continues with constant anxiety and sighing, pain of chest continues, feet and legs are œdematous, articulates with difficulty. 17th day, Delirium and œdema continue, with diarrhœa, back a little discoloured; pulse 124, feeble; considerable subsultus, countenance more anxious, and breathing is hurried. 20th, Discharge from arm continues, but swelling is nearly gone, delirium and subsultus continue, fæces passed involuntarily. 24th, There is a large sphacelation over the sacrum, other symptoms much the same, wound of arm healing, and no discharge from it. 27th, Slough has separated, and is not extending; wrist of opposite arm is much swollen *, and a distinct fluctuation is felt in it; no discoloration of the skin. 29th, Appears much reduced and insensible; breathing laborious and hurried, respirations 48 in the minute; pulse

* He had also exquisite pain in the left knee, which added not a little to his irritability, and Dr Dumbreck, then Superintendant, by whom the history was taken, and the dissection performed, mentions in his private notes, that in another case which proved fatal, he has noticed this metastasis affecting the foot, and giving much uneasiness.

136, moderate; tongue and teeth covered with sordes. 30th, Sunk gradually, and died at 4 P. M. *.

Dissection.—The body was much emaciated. On removing the integuments from the right arm, the subjacent cellular tissue was found considerably altered in structure, being converted into a firm ligamentous-like substance, and with difficulty separated from the surrounding parts. The *mediana longa*, from the back of the thumb to its termination in the median cephalic and basilic, presented the appearance of a nerve, being somewhat of a fibrous structure, but resembled an artery when cut transversely, the cut extremities presenting circular orifices, and not collapsing, as in healthy veins. When slit open, its coats were greatly thickened, and its surface lined with a thick layer of coagulable lymph. About the middle of the fore-arm, a small abscess formed in the vein, but was prevented from extending by the coagulable lymph. Above two inches above the bend of the arm, the cephalic and basilic veins were filled with pus, and their coats were uncommonly thin and easily ruptured. This appearance extended to the axillary vein, and terminated abruptly before

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* Inflammation of the vein commonly proves fatal from the 5th to the 10th or 12th day. The case here given is an exception certainly; but they are seldom so protracted, and this may probably have arisen from the cellular membrane along the course of the vein having been the primary affection, which is rendered more probable, from the thickening of the cellular membrane observed on dissection.—*Dr Dumbreck.*

ne vein crossed the first rib. The vein remained uite pervious, though its cavity was much dimi-ished, neither did it contain a particle of blood, nor ould its valves be observed. Between the first nd second ribs, near to their sternal extremities, n opening was discovered leading into a sac, form-l by an adventitious membrane of coagulable mph, filled with purulent matter, and pushing wards the *pleura costalis*. The sac contained four five ounces of pure pus. At the left wrist there as a similar collection of matter, containing about x ounces of pus. The lungs were perfectly healthy their structure, but several old adhesions existed etween the pleuras in both sides. The heart was tural and healthy; but on the left side there was deposition of coagulable lymph on its external rface, and the inner coat of the aorta to its arch d a deep red appearance. The other cavities were amined, but nothing of any importance was und.

CASE IV.—*From Venesection; severe, but not fatal.*

Elizabeth Harper, æt. 34, was admitted by me into e clinical ward, on the 19th of November 1822, on count of a hepatic affection. She had been bled m the arm, on the evening before admission, with eat relief to her symptoms; but at our visit on e 21st, we found that she had complained during e night of pain in her head and back, with some

pain in her right shoulder. The skin for some distance around the orifice was of a dull red, and there exuded from it on pressure, a small quantity of sanious fluid, sometimes a little purulent and bloody. The arm at this spot, and for some distance above and below it was very sensible on pressure, but there was no redness or feeling of a cord in the course of any of the vessels, nor any tenderness or swelling in the axilla.

The incessant application of cloths soaked in very cold water was ordered, and in the evening we had the satisfaction to find, that the redness was less extensive and less vivid, and to learn, that the cold application continued to be eminently beneficial.

On the 22d, a little fluid could still be pressed from the lancet-wound, and the redness was upon the whole less considerable, but its degree depended much upon the regularity with which the cold application was renewed. The pain extended to a short distance both above and below the inflamed part, but no swelling could be observed. Twelve leeches were ordered to be applied above and below the redness.

On the 23d, there was evident hardness and fulness, both above the puncture, along the outer edge of the biceps, and on the fore-arm. She had some startings in the elbow, but no tenderness in the axilla, shoulder, or breast; pulse only 78, and the bowels natural. Warm cataplasms were now ordered, but it appeared at the evening visit, that

they were rather hurtful than beneficial. The arm had become more painful, redder and more swollen, and the tenderness extended both down to the fingers which were swollen, and up the arm to the axilla; she also complained of headache; her spirits were depressed, and her pulse had risen to 104. The removal of poultices, and the exposure of the arm to free air, quickly gave some relief, but the application of twenty-five leeches, followed by cold evaporating lotion, produced a more decided effect.

On the 24th, there was more appearance of an abscess forming in the fore-arm.

On the 25th, the patient stated, that the cold application no longer agreed, and that warmth was more grateful to her sensations. The phlegmon was advancing, and a diffused fulness, without redness, or increased sensibility, occupied the back of the fore-arm. Leeches followed by cataplasms were freely applied on the 25th, 26th and 27th, with much benefit. The phlegmon on the fore-arm declined, but another appeared immediately above the lancet-wound, which burst and discharged its contents repeatedly by that orifice. After this, the disease gradually declined, and the last symptom to be removed, was rigidity of the biceps muscle. But it deserves to be remarked, that the application of camphorated oil, with the view of removing it, excited a considerable degree of cutaneous inflammation, with great swelling and increased sensibility.

CASE V.—*From Venesection; severe, but not fatal.*

Jane Robertson, æt. 19, was admitted into Queensberry Hospital, 5th April 1821, with fever and affections of the stomach. Was bled on the 17th May; complained of her arm on the 24th, when it was found to be much swollen and painful on pressure. Next day, the arm was still swollen and painful; there was a small discharge of pus, and the pain shot down to her fingers. Her pulse had risen suddenly from 72 to 130, and she had the usual symptoms of typhoid fever.

On the 26th, the swelling of the arm was diminished, the wound looking well, and discharging a small quantity of pus; but she complained of pain in the axilla and wrist, and the latter was slightly swollen. She received great relief from leeches and cold applications, but the affections continued for a long time, varying in intensity. On the 29th, the pain was very severe from the axilla to the fingers; but especially from the elbow to the axilla, the slightest pressure could not be borne. Leeches again gave some relief, but the pain continued, occasionally extending down her back (30th), and in the region of the pectoral muscles, which was swollen and soft. (June 6th.)

The discharge from the lancet-wound ceased on June 2d, but the arm felt remarkably hard, and was very painful on pressure; on the 4th she could not bend the elbow-joint, and the arm a-

ove the wound was rather more swollen and painful. On the 5th the swelling was more painful and ender. On the 7th the pectoral muscle is reported ender and more painful. On the 8th the pain tretched to the sternum, and the pectoral muscle was red, with a throbbing sensation on the 9th. Fluctuation was perceived on the 12th. On the 13th fluctuation in the centre of the biceps.

An incision was made on the 14th into the tumid part in the axilla, which discharged a considerable quantity of pus; and the fluctuation in the region of the biceps was opened on the 15th, and 6 oz. of pus let out with great relief. These orifices continued to discharge for a considerable time, but on the 17th she complained of pain below the elbow-joint, which seems to have been relieved by an increased discharge of pus on the 23d. July 2d, pain again below the elbow, and the orifices had both ceased to discharge. 16th, Pain in the upper part of her arm; and on the 17th she stated her conviction that the pain was in the bone. After this it continued with increasing severity, although no external symptom appeared. On the 30th a free incision was made without relief, and it healed by the first intention. On the 5th August it was repeated in the exterior part of the upper arm, through the fascia and a probe freely introduced round the wound, but no purulent matter was found, and no relief obtained; and after a great variety of other affections, she was dismissed, on 17th October, with her arm rigid, and the constant pain in no degree relieved.

After leaving the Hospital, however, she gradually recovered. The pain entirely ceased, and she acquired the use of her arm, except that she could not extend it completely. Of this I assured myself by personal examination lately, when she was a patient in the clinical ward for another affection.

CASE VI.—*From Venesection*; *not fatal.*—Communicated by Dr Robert Johnston, Kirkaldy.

——— Stewart, æt. 60, of a full and plethoric habit, was bled by one of my father's pupils for a slight pulmonic affection. Next day the parts surrounding became very tense and painful. On the following day I found that the inflammation had extended up the arm as far as the axilla, and over the pectoral muscle of the same side. I directed a warm poultice to be applied, which gave her some relief; and during the night she was attacked with rigors and high febrile symptoms, accompanied with coma. She took six grains of Calomel and twelve of Powder of Rhubarb, to be followed up by Infusion of Senna with Sulphate of Magnesia. Two hours afterwards, finding the symptoms nothing abated, eighteen leeches were applied, which bled well, and warm fomentations were used for half an hour; the medicines produced three copious dark coloured stools. Next evening she had a draught of thirty drops of Tincture of Opium, and a drachm of Antimonial Wine. I found her next morning con-

erably better. She had rested well; the pulse s diminished in frequency, and much softer; no rst, with some appetite. She took some water-uel for breakfast. I directed a saturnine lotion be constantly used, and light diet. On the third y an abscess formed at the insertion of the del-d muscle, which my father thought it prudent to n, but upon pressure it discharged quite freely the opening made by the lancet.

From this time she gradually recovered, and is w quite well.

ASE VII.—*Fatal; complicated with Veinous Inflammation, from ligature of a Vein.*—Communicated by Dr DUMBRECK.

Mary Macgregor, æt. 58, who had had the right mma successfully removed for scirrhus in the ospital ten years before, was again admitted, 1st ptember 1821, for a scirrhous tumour in the right lla. It was removed on the 8th, and was found burrow very deep, and a vein was tied in the eration.

9th, Had an attack of shivering through the ght, followed by fever this morning. Complains ch of pain of breast and of the arm. Vomits ery thing liquid.

10th, Sickness and tendency to vomit continue, th pain at the ensiform cartilage. No stool. eches were applied to the epigastrium.

11th, Vomiting abated, but sickness continues.

Tongue foul and dry, Pulse 108, soft. No stool since the 8th. Wound dressed, edges in contact, but discharge thin and unhealthy.

12, Bowels opened by medicine. Tongue very dry and foul. Complains much of numbness of arm.

13th, Pulse 120. Tongue still dry in the middle. Sickness, but no retching. Countenance anxious and oppressed.

15th, Considerable change in countenance since yesterday, which is anxious and oppressed. Wound looks unhealthy, and discharges thin serous matter. Pulse 120. Tongue dry, and foul.

16th, Died this morning.

Dissection.—The parietes of the cavity left by the tumor were found in a sloughing state. The neighbouring muscles, particularly the *pectorales*, *teres major*, and *latissimus dorsi*, were quite black, and yielded to the slightest violence. In their interstices there was much effusion of a yellow substance, resembling coagulable lymph. A ligature was found round the axillary vein, about half an inch below the entrance of the cephalic, and another upon the subclavian, a little above the entrance of the cephalic. A clot, about $1\frac{1}{2}$ inch long, was formed in the axillary vein, below the ligature, and a firm yellow fibrous clot, not quite so long, in the subclavian, above the ligature. The internal coat of the vein below the ligature seemed inflamed. The coats of the vein, from the upper ligature to the entrance of the external jugular, were much thickened, so as to re-

mble the coats of an artery. The portion of vein tween the ligatures was much shrunk on the side xt the axilla, and a small puncture was distinctly sible between them. The coats of the ascending va, right auricle and ventricle, were very dark loured.

ASES VIII. and IX.—*From Dissection; the one fatal, the other severe.*

Of the two following interesting cases, I regret uch that I kept no notes at the time, but the ief circumstances were strongly impressed on my emory, when I wrote out their history, which was vised by Mr Blyth and Mr Lizars.

On the evening of Saturday, 30th December 1821, was carried by Dr William Campbell to visit vo professional gentlemen, Mr Blyth and Mr oung, who had been taken severely ill shortly af- r having been engaged in examining a body. he disease in both was so similar for some days, at the same description will serve.

On Thursday the 28th of December, Mr Blyth as called to examine the body of a woman, and as accompanied by Messrs M^cDonnell and Young, udents of medicine. The body presented no un- mmon appearance externally, and emitted little r no putrid smell, but was extremely emaciated. he thorax was found to be nearly filled with se- us fluid, slightly tinged with blood, and without

any admixture of purulent matter. To form some idea of the quantity, Mr B. removed it with a cup, and consequently his hand came repeatedly into contact with it; and before closing up the thorax, Mr Young, who had hitherto been only a spectator, put his hand into the cavity and compressed the lungs. In a few hours after the dissection, Mr Blyth felt a slight smarting in the index-finger of the right hand; and, on examining it, observed that a small portion of the cuticle, not larger than a pin's head, had been abraded, and the spot appeared a little inflamed. He applied a bit of adhesive plaster, and thought no more of it that day. Having gone out next morning, he felt uncommonly chilly, which he then attributed to increased coldness of the weather, but was surprised, on mentioning the circumstance to a friend, at being told that the air was unusually warm and mild for the season. During this day Mr Blyth felt uncommonly languid and depressed, and towards evening became so ill as to be under the necessity of going to bed. About this time Mr M^{c}Donnell called, and suspecting the real cause of his illness, went immediately for Dr W. Campbell, who bled him by opening two veins of the left arm, but very little blood could be abstracted. In the afternoon of Saturday, Mr Blyth was suddenly seized with a lancinating pain in the glands of the right axilla, which was quite excruciating.

At our visit on Saturday evening, we found both our patients suffering under those symptoms which

ommonly characterise typhus fever; but our attention was chiefly directed to the local affections connected with the supposed cause. In each there was a slight abrasion on one finger, but when accurately examined, there was no inflammation or any appearance indicating a poisoned wound. There was not the slightest trace of an inflamed absorbent or vein from the finger to the axilla. Every part of the arm could be freely pressed, and every joint moved in all directions, without exciting the smallest pain, nor was there any discoloration whatever. In the axilla of both gentlemen was the first appearance of a morbid state. In both the glands were enlarged, and there was exceedingly painful general diffused swelling, with considerable redness, from the axilla up along the neck, and for several inches downwards along the side. The swollen parts did not pit on pressure, but gave an obscure sense of fluctuation, which was well characterised by Mr Lizars by the term *boggy*. At my request Mr Lizars plunged a lancet into the swelling on Mr B.'s side, about an inch and a half below the axilla, but nothing at that time was discharged from the wound but a little blood.

As no relief had been obtained, in Mr Blyth's case, from the puncture, as many leeches as could be fixed were now applied to the parts affected, and the bleeding was promoted by warm cataplasms renewed every two hours. A blister was at the same time applied to the thorax, on account of some affection of the breathing, but it did not rise well.

Mr Blyth now became very restless, though without delirium, which state continued several days and nights. Antimonial anodyne draughts were administered, with very little advantage, as they failed to induce sleep. Mr Blyth also suffered greatly from thirst, which no drink could quench, though with the intention of allaying it he swallowed great quantities of water acidulated with sulphuric acid.

In this state he continued about eight days, the diffuse swelling gradually extending down the side, with increased redness of the skin. The pain and inflammation then gradually diminished, the cuticle peeled off, and we were congratulating him on his fortunate escape, when one morning Mr Blyth was much surprised by the appearance of a quantity of pus which had flowed from the puncture made in his side by Mr Lizars at the beginning of his illness. An abscess was now found extending downwards as far as the *os ilium*, and nearly to the pubes. To allow a free exit to the pus, several punctures were made at the most depending points, and to preserve a free communication between them, a probe was occasionally introduced at the upper orifice, and brought out at those below. For many days there continued a very copious discharge of purulent matter, at last accompanied by considerable flakes of a substance not unlike a skein of thread, which we considered to be disorganised cellular membrane. The treatment consisted in applying compresses with bandages to the margins of the abscess, and keeping the orifices open as long as there was pus to be discharged.

Under this treatment, Mr Blyth was recovering rapidly, when he became affected with an aphthous sore mouth. The whole of the fauces, as far as they could be seen, was encrusted with a thick layer of coagulated albumen, which was no sooner detached than it was renewed. It was only with the greatest pain that he could swallow any thing, solid or fluid, and the secretion of viscid saliva was so excessive, that his head had to be raised every five minutes to allow it to escape, otherwise he was in danger of being suffocated. Gargles of every kind were tried without effect, and a blister applied to the throat was the first thing that afforded him relief. At this time Mr Blyth was also much distressed by an obstinate and alarming hiccup, which was at last removed by sipping milk and water, by the advice of Mr Lizars, who had found this practice prevent hiccup even in the last stages of yellow fever. When convalescent, Mr Blyth was allowed a nutritive diet, with a liberal use of wine. His recovery at last was complete, so that there is even no adhesion of the skin to the muscles of any part of the side.

Though strikingly similar in its commencement, and progress for some days, the disease proved fatal to Mr Young. On the same day that Mr Blyth's attention was attracted to the sore on his finger, Mr Young was observed to have his finger bound up, and, on inquiry if he had cut it, he stated that a few days before, it had been slightly scratched with a pin, and finding it a little painful, he had just

then had it dressed. For some time before this, he had been under treatment for an affection of the chest; and on the evening of the dissection he had fallen down stairs, not without suspicion of intoxication. In general the symptoms and treatment were so similar to those in Mr Blyth's case, that it is needless to repeat their description. On the whole, the case seemed rather milder than that of Mr Blyth, and great hopes were entertained of Mr Young's recovery, when he was suddenly seized, in the morning of Thursday, 4th January 1822, with all the symptoms of pleuritis in the highest degree, for which a vein was opened without affording him relief. In the evening he became outrageously delirious, and died early next morning. The body was opened next day, in the presence of Dr Campbell and myself, by Mr Lizars, to whom I am indebted for the following description of the appearances observed.

Notes of the Examination of the Body of Mr Young.

The skin of the right side of the trunk, from the axilla to the crest of the *os ilium*, appeared as if a blister had been applied immediately before death, and the epidermis was raised and wrinkled, with a quantity of serum effused under it. The *cutis vera* was motley in several places, and appeared about to sphacelate, and the skin of the inside of the arm of the same side, from the axilla to the elbow, had also a motley appearance, but less marked.

An incision was first made from the clavicle to the crest of the os ilium, and another crossing it to

the axilla, when the subcutaneous cellular substance appeared in some places distended with serum, especially about the loins, while in others it was turgid with purulent matter, which was most conspicuous over the *pectoralis major*. On prosecuting the dissection, the whole cellular substance of the side, from the axilla down to the os ilium, and from the spine to the sternum, was more or less purulent; the cellular sheaths of the *latissimus dorsi*, *serratus major anticus*, *pectoralis major* and *minor* muscles, were all purulent; and even the prolongations of the cellular membrane, which divide the muscles into their different fasciculi, were equally purulent. Between the two pectoral muscles, and beneath the *minor*, the infiltration of the cellular substance with purulent matter was very conspicuous. The carneous fibres of these muscles had in general lost their cohesion, and were of a dirty-yellow colour. The intercostal muscles were pretty sound, but the external surface of the pleura beneath them was highly inflamed, and the vessels bold and distinct, and conspicuously ramified.

In the axilla there were numerous small collections of purulent matter, as if it had been secreted into the cellular tissue. The lymphatic glands were enlarged and inflamed, but had not suppurated. The nerves possessed their natural colour, so did the axillary artery, and even its branches, with the exception of those immediately supplying the axilla. The vein in some parts had a dirty-red appearance, and the small branches coming from the

axilla were immersed in purulent matter, and had lost their tenacity.

The dissection was next carried down the arm: the brachial vein, as well as the median-basilic, was slightly red in several places, and a twig of the internal cutaneous nerve presented an inflamed appearance; which, however, ceased at the bend of the arm. The cellular substance of the arm was every where healthy, and there was not the slightest vestige of disease in the fore-arm, nor could any connection be traced between the abrasion on the finger and the morbid parts.

The thorax was now examined: the pleura of the right side, which has been already mentioned as inflamed on its outer surface, was much more so internally. Here its colour was deeper, and the inflammation was in patches, extending over the whole surface of the cavity to the mediastinum and pericardium. The surface of the right lung had a white appearance, from coagulable lymph effused upon its *pleura pulmonalis*, which was considerably thickened, but the substance of the lung itself was healthy. In the cavity of this side of the chest, more than three pints of bloody serum, with flakes of coagulable lymph floating in it, were found. The pleura and lung of the left side were perfectly healthy, but some bloody serum was found in the cavity, though not nearly so much as on the right side. The *vena cava descendens*, and the right auricle of the heart, appeared inflamed, but the other cavities were healthy, and all of them filled with blood, part of

which had an appearance of fibrine. The walls of the ventricles, when cut across, were darker than natural.

CASE X.—*From Dissection; severe, not Fatal.*—Communicated by Mr Whitelaw.

John Whitelaw, middle aged, of full habit, in good health, free from any scrofulous taint, but of a nervous, irritable temperament, was engaged, on the 10th of November 1821, in Mr Lizars's Rooms, Edinburgh, dissecting a body which had been long kept, and was very much decayed. About three o'clock in the afternoon of the same day, when examining the diaphragm, he made a small incision, not exceeding one-sixth of an inch in length, close by the nail of the forefinger of his left hand. It was merely sufficient to bring the blood. He wiped it clean, sucked it well, and having, as he thought, removed all ground of apprehension, went on again with the dissection. He observed nothing peculiar, either in the finger, or in his general feelings, till about nine o'clock in the evening, when, after drinking a single glass of whisky-toddy, he felt a warm glow diffuse itself over his body, and immediately the finger began to feel uneasy. The sensation at first was merely that of increased heat. Soon after it became somewhat painful. But the pain was very slight, and confined to the single point where the wound was received. He now began to be apprehensive of the consequences. He again washed and sucked the finger well, wrapped

it up with a rag spread with simple ointment, took a dose of purgative pills, and went to bed. During the night, the sensation of heat and pain continued to increase,—pulse considerably accelerated, and he slept little. These two last symptoms the patient judged to be a good deal owing to the state of his mind, having become very apprehensive.

11th Nov.—Pain of finger still increasing, with a sense of throbbing. On getting out of bed felt chilly, pulse 90, small and sharp. No appetite for breakfast. Took an ounce of sulphate of magnesia, drunk a few cups of tea, and walked out. Felt chilly, and exceedingly uncomfortable. Spirits much depressed. Consulted Mr Allan, who directed him to make a strong solution of the acetate of lead and opium in boiling water, and to dip the affected finger into it a number of times, retaining it as long each time as he could bear it. As the solution cooled, the whole hand was to be immersed into it, and kept half an hour. A poultice was also ordered to be made of the same materials, and applied as hot as the hand could bear it. Both the dipping process and poultice to be renewed every two hours. This prescription was carefully attended to. Towards evening, a slight degree of inflammation observed round the edges of the wound, pain sharp and throbbing. Chillness, and other febrile symptoms much increased. Bowels freely evacuated by the cathartic medicines. Pediluvium, and went to bed. Fever increased much during the night. No sleep; slight delirium.

12th.—A small elevated dark-coloured tumor perceived on the finger, surrounding the wound. The hand swelled slightly as far as the wrist. Muscles of the forefinger and thumb stiff, and painful on motion, or when pressed. Pain beginning to be felt stretching up the inside of the arm to the axilla and shoulder. The fever high, pulse rapid and small, with headache, vertigo, nausea, but little vomiting. Patient unable to sit up. The same applications continued. Patient wished to be bled, but this was not thought advisable.

All the symptoms aggravated towards evening. Some delirium during the night. Pain in the axilla and shoulder now growing severe; the wrist and elbow joints little affected.

13th.—Tumor on the finger larger, and extending up towards the first joint, attended with much burning pain. Red streaks now perceived on the inside of the arm near the axilla, but little or no swelling. The same applications continued to the hand. Barley-water and gruel the only food taken. Bowels kept open by saline medicines. Patient could not lie but on his back, or move at all without much pain; felt also very weak. The following night passed in much distress. The pain now stretching along the pectoral muscles and those of the scapula. Pulse from 110 to 120, with delirium, but patient correct in his answers when spoken to.

14th.—Patient again desired to be bled, but it was thought that it would weaken him too much.

Towards evening all the symptoms very much aggravated. The pain extending along the pectoral muscles on the fore part to the sternum, and behind to the spine, down the back, in the direction of the *latissimus dorsi*, and up the neck to the ear, and hind part of the head. The arm and shoulder a little swelled, and somewhat red, but neither the redness nor swelling in any proportion to the pain, the principal seat of which was still in the shoulder joint and axilla. The sensation much resembled that burning pain which is experienced in acute rheumatism. The early part of this night spent in great distress, with considerable delirium at times. Pulse about 130; much headache; burning heat all over the body. After midnight, patient's strength became much exhausted, when a gentle diaphoresis began to break out, and he gradually fell into a more easy and quiet state, approaching to sleep. The diaphoresis increasing, terminated in a most profuse dark-coloured clammy sweat, of a smell so exceedingly fœtid and disagreeable, that it could neither be borne by the patient himself, nor by his attendants. It was in such abundance, as not only to wet his body-clothes, but also the bed-clothes, and stained them of a dark colour, so that they could with difficulty be washed white again. When the patient awoke out of this state of slumber, in which he had continued during the perspiration, he felt great relief of all the symptoms. The fever was much moderated, and the pain of shoulder much relieved. But upon inspection,

he arm and shoulder were observed of a dark fer-uginous colour, and his whole body emitting such n intolerable stench, with great prostration of trength, and small pulse, as induced not only the atient, but also some of his medical friends, to be-ieve that gangrene was commenced. This occa-ioned much alarm and agitation of mind.

15th,—One of his medical friends now called n Dr Sanders. He assured the patient (who had till a little delirium, and much despondency) that here was nothing like gangrene in the case, and hat the dark-coloured fœtid sweat was the most ortunate thing that could have happened. The emainder of this day passed in comparative ease, lthough exceedingly weak and exhausted. In the vening had an exacerbation of fever with some de-rium, and much phantasma. Whole system in a trange state of nervous irritation. Spirits preter-aturally elevated. Had no sleep during the fol-owing night, but lay quiet. Pain of shoulder, hough considerable, much less severe.

16th.—Patient felt himself exceedingly weak. Beef-tea and gruel taken. Pain of shoulder rather ncreasing. Warm fomentations ordered. Swell-ng of the finger and hand stationary, but pain not o severe. About four o'clock in the afternoon, ulse became rapid and weak. Soon after this ainting fits succeeded, which continued at inter-als during the whole of the ensuing night. Pro-use perspiration, but without either fœtor or dark olour. Wine and beef-tea drunk freely.

17th.—Patient so weak that he can with difficulty be raised up in his bed. Pain of shoulder and hand same as yesterday. Exacerbation of fever in the evening; no sleep during night.

18th.—Pain of shoulder same as it had been for two days past. Felt rather more strength to-day. Fever and delirium increased towards evening as usual, and continued till morning. A little white milky-looking matter oozed from under the nail of the finger where the wound was received. After this the finger ceased to trouble him, except that it was stiff and swollen, and the muscles of the hand exceedingly painful when moved or pressed.

From the 18th to the 25th November the disease appeared stationary, or rather on the decline. The pain in the shoulder, though still very considerable, was much mitigated from what it had formerly been, and the fever reduced in violence, though still attended with pretty smart evening exacerbations, which continued during the greater part of the night. The warm fomentations were continued to the shoulder.

On the 26th November, patient felt so well as to get out of bed, and sit up an hour. On returning to bed was seized with a violent rigor, which continued nearly an hour, although he was covered with a load of warm clothes, and bottles of warm water applied to his feet. This was succeeded by high fever, which lasted during the night. Had a slight remission in the forenoon of the 27th, with a

urn of fever again in the evening, and an in-
ase of pain in the arm and shoulder, stretching
ng the pectoral muscles, and those of the scapula,
it first. Eight leeches applied with considerable
ef; but in two days afterwards the pain returned
h great severity. The fever now assumed a more
ular remittent form, the exacerbations coming on
out three o'clock in the afternoon, continued se-
e from six to nine in the evening, and then gra-
lly declined to midnight. From this time un-
the usual period of the accession, fever more mo-
ate, but without any proper intermission. Pulse,
ring the remission, from 90 to 100; during the
acerbation, from 100 to 110. Skin hot and dry.
wels kept open by medicine. In time of the re-
ssion, infusion of cinchona exhibited, and an ano-
ne draught about midnight, which, however,
ough it gave some ease, procured no sleep. Hopes
ll entertained that the inflammation and pain of
oulder would terminate by resolution.

3d Dec.—A large blister applied, which rose well,
t was followed by violent stranguary, and no re-
f to the pain. After the healing of the blister,
nentations and warm poultices again had recourse

Fever still on the increase, and pursuing the
me course. The patient growing very weak,
all quantities of wine given, but this appeared to
crease all the febrile symptoms. The shoulder
w swelled considerably, and a little red. Pain
ry severe.

7th.—The humerus, shoulder, pectoral muscles, and those of the scapula, considerably swelled and red. Pain very severe. Fever had now little or no remission. Slight rigor in the evening. Night passed in great pain, and high fever, but no delirium.

8th.—A small soft tumour observed in the axilla. Febrile affection the same as yesterday. Rigors again in the evening. Pulse 112, small.

9th.—The tumour increasing rapidly in size; in other respects the same; rigors.

10th.—A pretty large bag now filled up the whole cavity of the axilla. It felt quite soft to the touch, and evidently contained a fluid. To-day it was opened by Dr Sanders, and discharged about a pint (English) of thick, white purulent matter. This matter appeared to be merely collected in the axilla, from the neighbouring parts. The glands there never were much affected; and the matter flowed in large quantities when the shoulder and upper parts of the pectoral muscles were pressed. The fever and pain now abated somewhat, but still both continued severe. Wine now relished, and could be borne in considerable quantities. Every day during the following week, about half a pint of matter, discharged by slight pressure on the shoulder and pectoral muscles. A probe introduced at the aperture could, without giving almost any pain, be carried four or five inches in different directions, between the tendinous sheaths of the muscles. Notwithstanding that the patient drank nearly a bottle

of the best port wine each day, and had a liberal allowance of beef-tea, gruel, &c., by the 17th he was exceedingly reduced in body and in strength. The pain in the shoulder, though much diminished, still pretty severe. Cloths wrung out of hot water, and applied to the part, alone afforded relief. The fever appeared now to assume the hectic type, with profuse perspiration during the night. Got decoction of cinchona with nitric acid.

By the 20th December the discharge had diminished to about ℥iv. per day, of a thin glairy nature. From this time both the pain and discharge decreased. Wine, decoction of cinchona, and acidulated drinks continued. Fever and sweating gradually subsided, and appetite returned.

By the 4th of January, patient could sit for an hour a-day out of bed. After this, his general health rapidly improved. About the middle of February the abscess closed. It was not, however, till nearly the end of May that he recovered his usual strength. The arm continued of little use for many months after this. A year and nine months have now elapsed since the accident took place, and, although the arm can be used with facility on ordinary occasions, the shoulder-joint is still stiff and painful upon any considerable exertion.

CASES XI. & XII.—*Derived from the Dissection of the same recent Subject.*

These cases occurred in two of the clerks of our Hospital, one of whom, a most accomplished and amiable gentleman, fell a sacrifice to the zeal with which he was prosecuting the study of the profession he had selected; and the other happily recovered after a very severe illness. For the history of Mr Hercey's case, I am indebted chiefly to Mr Macdonald, apothecary to the Royal Infirmary, having added only a few particulars relating to the last days of the patient's life, communicated by his most intimate friend Dr Barclay.

John Hercey, Esq. aged 34, residing in the Royal Infirmary, and senior Physician's Clerk, received, on Sunday 25th August 1821, a puncture in the ring-finger of the left-hand, when stitching up a dropsical subject, which he had been assisting to dissect, within 24 hours of the death of the patient.

During the afternoon of the following day he complained a little, and at night was seized with severe rigors, accompanied by thirst, prostration of strength, and other symptoms of constitutional irritation. Twenty leeches were applied to the arm, from the elbow upwards, and afterwards warm fomentations and poultices.

27th, noon.—Complains of considerable headache and sickness, with perceptible, though slight oppression, and anxiety of breathing; countenance somewhat collapsed, and expressive of anxiety. Pulse frequent; bowels opened by medicine. Does not complain much of pain in the finger, but a pustule has appeared where the puncture was made, and a distinct blush of redness, of about an inch or an inch and a half in breadth, extending from a little below the elbow to near the arm-pit. A circumscribed swelling has also taken place, embracing the arm around the elbow, and extending a little above and below the joint, but without any defined margin.

Notwithstanding he suffered much from his symptoms and constitutional irritation, he attended Dr Hamilton, and officiated at the visit.

28th, 10 A. M.—Passed a restless night. Swelling considerably increased, and the redness is spread over nearly all the extent of the tumified part, being evidently of an erysipelatous blush. The finger is nearly in the same state as yesterday. The affection of the breathing rather increased. Pulse frequent. Thirst urgent. Countenance more anxious; but is out of bed, and insists upon officiating at the visit at noon, although evidently very unfit for any exertion.

29th.—Arm continues to increase in size, and inflammation to spread in both directions from the elbow. The sore on the finger is of little consideration, giving no pain or uneasiness; no distinct

trace of inflamed lymphatics can be perceived extending along the fore-arm, and there is no tumefaction, or pain of the glands in the axilla. Has had retching and vomiting of bilious matter repeatedly since last night. Respiration anxious, and somewhat catching, but denies having any pain in the region of the chest. Pulse rapid. Thirst continues urgent. Anxious expression of countenance more marked, with evident sinking of features. Cloths, wet with solution of sugar of lead, and tincture of camphor, have been kept at the arm constantly for the last two days.

30th.—Restless night. Has had nausea; symptoms continue; swelling extending, and redness spreading.

31st.—Symptoms unabated. Is recommended to leave the Hospital, and to go to private lodgings, to which he was removed accordingly.

Sept. 1st.—Inflammation and swelling of the fore-arm increased, extending to the shoulder, and down towards the wrist. Several vesicles, some of an oblong, others of a more circular shape, appeared to-day on the back of the fore-arm, below the elbow, and along the outer and inner side of the arm, above the joint, the smallest of which is about the size of a sixpence, elevated, and the longest from two to three inches in length. Some are filled with transparent serum, and others with a thin fluid, but of a dark colour. The erysipelatous inflammation encircling these vesicles has assumed a dusky hue, which extends over the greater part of the arm, from

bove the wrist, and upwards over the shoulder, but ecomes gradually fainter as it recedes from the ases of these vesicles. Thirst urgent. Pulse fre-uent, and febrile symptoms aggravated.

2d.—Very restless night, but declined taking an piate, which had been prescribed. Considerable nau-ea to-day, especially after taking liquids. Bowels ave been opened by medicine. Inflammatory hue, eepening in tint, extends over the deltoid muscle, nd from the breast backwards over the shoulder. he region of the deltoid is also occupied by vesicles milar to those already described, varying in size, nd filled with a dark serous fluid. Some of the ve-cles on the arm were opened, and some have burst. he swelling has diminished in the lower part of e fore-arm, but, on the whole, the symptoms are no respect improved.

3d.—State of the arm not improved. Most the vesicles have burst, and have discharged such uantities of fluid as to penetrate the bed, and run pon the floor. Had an obvious tendency to deli-um during the night, and, to-day, is distinctly ob-rved to waver occasionally. No improvement in y respect.

4th. — Had a very restless night, with fre-ent copious vomiting, of a dark coloured mat-; but about 5 in the morning he called for his eakfast, conversed with his landlady, said that he ver should forget her attention, and ate to all ap-arance with an appetite ; but expired at half-past A. M.

Treatment.—The solution was continued to th arm; a few laxative pills were given. On the even ing of 1st September, a little claret was ordered, which he accepted with reluctance, but the nurs persevered in giving him a little occasionally. O the evening of the 2d September, a grain of soli opium was prescribed. Had a little tea and panad for food, and barley-water for drink.

Body not examined.

Dr Hennen *junior*, another of the Hospit clerks, was severely affected, in consequence of puncture received in dissecting the same body. A extensive suppuration took place in the axilla; an he was greatly reduced, but at last his recovery wa complete.

CASE XIII.—*Fatal; from Dissection.*

Dr Dewar, a resident Fellow of the Royal Co lege of Physicians of Edinburgh, wounded a finger the *left* hand slightly, when examining the body of a enteritic patient, on Monday the 13th February 182 and immediately applied caustic to the wound. H attended a meeting of the Royal Society in the even ing. On Tuesday he remained in bed, complain ing of languor, general debility, and affected wit rigors. On the 16th, the *left* axilla became ex ceedingly painful, without much swelling of th part, or any hardness in the course of the absorbent on the arm. Leeches were applied to the axill

with great relief to the pain. On Saturday, at 3 A. M., one of his medical friends was sent for, on account of an accession of pain in the *right* forearm, with some swelling and redness. Leeches were immediately applied, which bled freely, but without affording any relief, for the inflammation and swelling extended rapidly. At 5 P. M. he was bled from a vein in the arm, and the blood was sizy, without much separation of serum. Early in the morning of the 19th, he became insensible, and he died at 9 A. M. The symptoms throughout were those commonly called Typhoid, and the treatment strictly antiphlogistic.

Body not examined.

CASE XIV.—*From Dissection; not fatal.*—Communicated by Dr FAIRBAIRN.

Mr Cumming, a medical practitioner in this city, was present about 1 P. M., 30th September 1821, at the dissection of a young woman who died from puerperal fever. Took no share in the dissection, except introducing a fresh thread into the needle which was employed in sewing the body, and was not aware of an abrasion, or of having punctured himself in the act of threading. About eight hours thereafter felt an uneasy sensation in the middle finger of the *left* hand, at the inner side of the flexure of the first joint, where, on examination, there was discovered an angry pimple. Passed a restless night; towards the morning had a severe rigor, to which supervened symptoms of pyrexia.

On Sunday the 1st October, about 11 A. M., Dr Fairbairn was called to visit Mr Cumming. On the finger, as above described, a pimple was seen, from which there oozed out a sero-purulent fluid. A poultice was ordered. The arm exhibited no marks of inflammation, but about an inch above the internal condyle of the humerus, an enlarged gland, painful to the touch, was distinctly felt. On the following day (Monday) the parts about the axilla, and under the pectoral muscle, were greatly swollen, painful on being handled, and conveyed an elastic feeling to the finger, accompanied by fever, violent headache, and great constitutional disturbance.

He was bled four times from the arm; had two dozen of leeches applied twice to the shoulder; and an anodyne astringent wash ordered to the affected arm. The skin was kept relaxed by diaphoretics; the bowels open by cathartics; and spare diet was enjoined.

Under this treatment, in four or five days, the symptoms had greatly subsided; the fever was much lessened; the headache relieved; and the swelling of the arm and axilla so much reduced, that he could move the arm freely. This amended state continued for a day or two, with the exception of an uneasy feeling, first complained of on Thursday the 5th October, in the *right* fore-arm, which was considered rheumatic, from his predisposition to that disease, and being near a window, he may have been exposed to a current of air; but there was not the smallest tumefaction or inflammation anywhere observable. On Saturday evening the 7th, a deep-seated

swelling, of the size of a pigeon's egg, was discovered in the same arm, nearer the wrist than the elbow. It was circumscribed, with some redness, and painful on pressure. Sunday, the swelling had increased considerably, occupying nearly the whole fore-arm, with an erysipelatous appearance, pulse at the wrist obscurely felt. Monday, the tumefaction had increased to an alarming extent, from the extremities of the fingers to the *acromion scapulæ*. Temperature and sensibility of the parts affected much diminished, which were covered with gangrenous vesications.

On the following evening, between 11 and 12 P.M., being the 11th day after the dissection, he died.

Body not examined.

CASE XV.—*Resembling* Paronychia gravis.—Communicated by Dr FAIRBAIRN.

This case is interesting, on account of its connection with the preceding, as its occurrence increases the probability, that the disease in both instances arose from inoculation with an animal fluid derived from the same body.

A towel that had been used in place of a sponge, during the dissection in which Mr Cumming met with his fatal accident, was washed in the evening by Mrs Edie, who got the middle finger of the left hand, at the first joint, scratched with a pin which had been in the towel. She felt the part painful the next day, had shivering and headache, with pyrexia. Inflammation and swelling soon extended from the

finger up the arm, attended with excruciating pain. She was bled, and had a dose of salts. Dr Fairbairn saw her on the fourth day from the accident.

The inflammation and swelling were then as high up as the elbow, with an erysipelatous appearance; several glands in the inner side of the humerus and axilla were enlarged, and painful on pressure. The constitutional symptoms were severe. She was bled twice, had diaphoretics and cathartics administered daily. Under this treatment, the inflammation was partially checked, the fever somewhat subdued. At length an indistinct fluctuation was felt in the palm of the hand; and, on a free incision being made, a quantity of purulent matter was discharged. A second incision was made in the back of the hand, between the carpal bones of the fore and middle fingers, and a third along the palmer side of the punctured finger. Notwithstanding these different openings, severe rigors now and then occurred; the other symptoms, although mitigated, were by no means subdued. Dr Fairbairn therefore resolved on laying open the finger down to the bone, thinking that matter was lodged between it and the flexor tendons; this being accomplished, a bloody purulent matter was discharged; the swelling and inflammation soon subsided, and the wounds healed kindly.

CASES XVI. & XVII.—*From Dissection; slight.*—Communicated by Dr Molleson.

Mr W. D. student of Medicine, pricked his finger on 25th November 1822, when engaged in

dissecting a body rather putrid, and supposed to be scrofulous. Next morning a slight degree of pain was felt in the part, and a blush of inflammation observed around the puncture. He attended lectures during the day, but towards evening the pain and local affection increased so much, that he was obliged to seek medical assistance; but the system was not as yet affected. Dr Molleson ordered the application of leeches directly upon the part, poultices, and a saline purgative.

The leeches were ill applied, and gave but transient relief. He passed a restless night, and on the 27th was much worse. Pain insufferable, extending with tenderness to the touch to the axilla. Inflammation creeping up the finger. Arm, especially towards the axilla, tumid. Axillary glands, and a conglobate gland above the inner condyle, considerably swelled and tender. Pulse 96, full and remarkably bounding. Great heat, restlessness, anxiety, nausea, and white tongue. A deep incision, an inch long, was made by Dr Molleson along the point of the finger, where it was most tumid. It bled little, but soon gave him much relief. Blood was now taken from the arm in a very full stream, but when 12 oz. were abstracted, faintness was produced, though the patient was laid in the horizontal position. The affection of the system was, however, greatly and permanently relieved.

On the evening of 29th November, increased pain and swelling of the axilla, which proceeded to suppuration, and the abscess was opened on 6th De-

cember, which discharged a tea-cupful of matter. In a few days he resumed his studies.

Mr A. B., a student of Medicine, when engaged in dissection, had a little cuticle abraded from his finger 19th November 1822. For two days a little watery fluid oozed from its surface. On the evening of the third day wound whole, but pain felt in the axilla; and lymphatics, in an inflamed state, could be distinctly traced from the wrist up to the shoulder-joint.

22d.—Unable to raise the arm from the pillow. Passed a very restless night. Severe headache; vomiting urgent. Tongue parched. Great thirst. Pulse 108, full and strong, with the other symptoms of violent symptomatic fever. 20 oz. of blood were drawn from the arm with immediate relief; but, after two hours, the headache and vomiting returning, the arm was unbound, and 12 oz. more were taken, with relief as before.—8 P. M. Violent pain in the axilla, with some swelling of the glands; eight leeches were applied, and then cold lotions continually to the part, and the antiphlogistic regimen strictly adhered to.—23d, Much worse. Delirious night. Pulse 116, irregular. Axillary tumor increasing. Leeches repeated. Lotions continued. —24th, Pain violent, increased by the cold lotions; warm poultices and fomentations were substituted. Pulse 118, irregular and weak.—28th, Pain not so violent. Tumors increasing. Wine allowed.

1st Dec.—Pain in the axilla almost gone. Fluc-

tuation in the tumors. Some rigors and shivering. Pulse ranging from 130 to 160.—3d, Tumor opened, and discharged 7 oz. of pus, and 6 oz. more in the evening.—4th, Profuse perspirations.—10th, Much improved.—11th, Able to go out.—On the 25th and 26th, was able to walk with ease; but the motion of his arm was still limited; and, in June 1823, he wrote that his arm was still unable to perform all its functions, but that, of late, a very extensive eruption had come out on it, which had done it great good.

CASE XVIII.—*From Dissection; severe, not fatal.*—Communicated by Mr BURTON.

Mr Burton, on the 1st of January 1821, was engaged, about noon, in examining the unburied body of a person who had died of aneurism. In the evening about 6, he felt drowsy, but went into society. At 10 P. M. he observed an areola around a puncture on his knuckle, and applied a poultice over his hand. At midnight he was seized with severe pain, and recollecting the practice in America, when any person is bitten by a rattle-snake, he tied a ligature very tightly around his arm.

In the morning he removed the ligature.

2d.—There was great swelling of the hand, and he felt very languid. In the evening the inflammation was extending up the arm, and numerous red lines were seen reaching up to where the ligature had been applied, and they could be felt like whip-cords under the surface.

3d.—The fore-arm seemed affected with general erysipelas, which continued to increase; but it is not a little remarkable, that its progress up the arm terminated at the part around which the ligature had been applied.

14th.—Erysipelas declined.

15th.—Exceedingly low, and he began to get wine. Livid spots of the part affected with erysipelas suppurated.

16th.—Sloughs began to come away in the evening. After this, suppuration, ulceration, and sloughing continued for a considerable time, with loss of skin, cellular membrane, and Mr Burton thinks even of muscular substance. He was also subject to a kind of delirium, when fatigued by the dressing of the sores. He did not recover finally till August, and, at present, his left fore-arm is considerably smaller than the right; his wrist has little motion, and his hand, which at first was flexed, is now extended. There are large scars both on the hand and on the fore-arm, with adhesion of the skin in various parts, particularly near the wrist, to the parts beneath. On drawing the finger across the scars on the fore-arm, a singular tingling sensation is excited in the hand, as if an exposed nerve were irritated by it.

CASES XIX. & XX.—*From Dissection and Puncture; not fatal.*—Communicated by Mr Lizars.

"Mr S., one of my pupils, assisted in the dissection of a puerperal fever case, when he pricked

his fore-finger, and in the evening had shivering, and general pyrexia. The following morning I saw him, and found the fever considerable, and the hand inflamed and swollen, with a tenderness along the arm to the axilla; I instantly bled him to syncope, applied large poultices to the hand and arm, renewing them whenever they became cool; ordered his bowels to be kept open, and to have low diet, and to be kept quiet. In the evening he was easier, but not so much as I expected; I therefore repeated the bleeding to syncope, and continued the other remedies and directions. The fever and pain declined from this last bleeding, but two small suppurations took place in the back of the hand, which were freely opened, and soon healed. Mr S. is now quite well. This case occurred in January 1822."

A sheep's head was prepared for Mr M., one of my pupils, by the servant, who removed the skin with a clean knife, and washed the head under the cock of the water-cistern, not in the trough beneath. Mr M. then sawed the cranium, and in lifting up the skull-cap, he pricked the fore-finger of his right-hand with a spicula of the bone; the wound smarted a little, but not so much as to prevent him pursuing the dissection of the brain. The following, or second day after, considerable inflammation attacked the finger, and spread along the hand and arm; a poultice was applied, and repeated whenever it became cool; and a pretty copious bleeding

taken from the opposite arm. I did not see him until the day after this bleeding, when finding the arm very painful, and accompanied with fever, I recommended the bloodletting to be repeated, and carried to syncope; and the poultices also to be continued; low diet, the keeping the bowels gently open, and quietness, were enjoined. The finger suppurated, and required an extensive opening; the palm and back of the hand also suppurated; and both required similar treatment. The forefinger is now so stiff that he cannot bend it like the other fingers of the same hand. This accident occurred in spring 1822."

CASE XXI.—*Fatal; from a Prick with a Flesh-Hook.*—Communicated by Dr Abercrombie.

15th Dec. 1821.—Mrs Hodge run a flesh-hook into the point of the thumb of her right hand, while hanging up a piece of meat. Made an open ragged wound, of very little depth.—16th, Felt some pain in the thumb, but not severe.—17th, Felt pain in the arm *above* the elbow. Thumb better.—18th, First seen in the evening by Mr Page; having become feverish, and generally unwell, in the course of the day. Pulse then 120. Arm, betwixt the elbow and shoulder, a little swelled, and painful to the touch; and some pain extending down the side of the thorax. No complaint of the thumb, which exhibited merely a ragged, su-

erficial wound, of very little depth. Was bled, &c.—19th, Pulse 100. Arm still painful, but less so than yesterday, and seemed generally relieved.—20th, Pulse 116. Considerable pain of side, with cough, and some difficulty of breathing. Tongue clean.—21st, Pulse 120. Pain and tenderness of the right side of the neck, extending from above the clavicle, along the neck, to the back part of the head. Slight delirium. Tongue clean.—22d, Delirium increasing. Some difficulty in speaking. Pulse 120. Bled again.

I saw her, for the first time, in the afternoon of this day. She then had the general appearance of typhus, and scarcely could be made to answer a question sensibly. She shrunk from the slightest touch on the right side of the neck, and above the clavicle. These parts were swelled, but scarcely discoloured. No complaint of any part of the arm. The wound of the thumb was merely like a laceration of the cuticle.

23d.—Constant delirium, and a tendency to coma. Pupil of the right eye dilated; and at times there was observed convulsive twitches of the mouth, and an appearance of paralysis of the right cheek. Pulse very frequent, and small. The same tenderness continued along the right side of the neck. Died early in the morning of 24th.

Dissection.—On laying open the parts on the right side of the neck, the cellular membrane appeared thickened, and extensively diseased. The muscles dark coloured, and very soft. There was a

considerable quantity of thin sanious fluid, partly puriform, discharged from all the exposed parts, without the appearance of any particular cyst or abscess. The lymphatic glands were a little enlarged, and those in the axilla considerably so; and from the incision made into the axilla, there was the same discharge of thin sanious or puriform fluid as from the neck. Nothing morbid could be discovered either in the arteries, veins, or nerves of the parts. No morbid appearance could be detected in the brain, or in any of the other viscera.

CASE XXII.—*From a Bruise; fatal.*—Dissection communicated by Mr MACDONALD, Apothecary to the Royal Infirmary.

Alexander Sutherland, æt. 75, was admitted into the Royal Infirmary after the visit on the 6th of August 1823, in a state of delirium. The whole of his right-hand was very much swollen and inflamed, and there was great œdema, with some small vesicles on the back part of the hand. The swelling and inflammation extended up the fore-arm, which he could hardly bear to be touched. Pulse 130, full. Tongue crusted. Skin hot and dry. Thirst considerable.

These complaints were occasioned by the little finger of the left hand having been very severely bruised by a large piece of coal which fell upon it about a week ago. During the last three days the symptoms have been alarming.

He got a purgative bolus, and his arm was fomented with a decoction of poppy heads.

7th August.—He passed a composed night. Cathartic operated briskly. Hand and fore-arm much inflamed and swelled. Pulse 108, irregular. Tongue parched.

The fomentation was directed to be continued, and an antimonial solution was prescribed; but he died at 10 P. M.

Dissection.—9th August.—Along the inside of the arm, in the course of the inflammation from the wrist to the axilla, and down the side of the thorax for a considerable way, the cellular membrane was found, by removing the integuments, and reflecting the *pectoralis major*, to be surcharged with serum, in some places tinged of a brown colour. A degree of redness, in the form of striæ, was observed in some places; and at the wrist, and a little above it, in a line, on the inside of the ulna, there was a small quantity of pus in detached circumscribed longitudinal patches in the cellular membrane. On dividing one of the large axillary glands, a small portion of pus was found in its centre, although there was none on its surface, and the substance of this gland was paler than several other glands in the axilla, which, upon being divided, seemed healthy, and more of a brown or red, approaching to flesh colour. A portion of the muscular structure at the axilla was paler, softer, and more flabby, than the sound part a little beyond, and the intermuscular cellular tissue may have been here also a little

charged with serous effusion. There was no distinct line of demarcation discovered, as if adhesive inflammation had taken place, and confined the serum within boundaries. In the thorax there was no interstitial, or other effusion; but between the arachnoid coat and *pia mater* of the brain, and in its ventricles, there was some serous effusion; otherwise the brain was healthy.

CASE XXIII.—*Resembling* Phlegmatia dolens; *fatal.*

Catherine Monro, æt. 26, married, admitted into the Clinical Ward, under my care, 3d June 1816. The nates, thigh and leg of the right side were considerably swollen, not very tense; the surface was even, and the skin of its natural colour. No indentation remained after pressure, except around the ankle. The heat of the limb felt increased, and pungent. The whole limb was very painful, tender to the touch, and she was incapable of moving it. Some glands in the groin were slightly enlarged, but she had no pain from them. Pulse 140. Heat 104½°. Tongue dry and white. Appetite impaired. Bowels regular from medicine.

Six weeks ago she was delivered of a child, and the labour was difficult. Two days afterwards rigors came on, succeeded by great heat, pain and swelling of the right thigh, which gradually increased. Embrocations were applied to the part, but they afforded her no relief. She had an ab-

scess in the right breast, which was now healed, but she had not been able to suckle her child.

4th June.—No sleep, from excessive pain.

Eight leeches were applied to the groin, which fastened chiefly on the inside of the thigh, and procured the discharge of a very great quantity of bloody serum, which relieved her much, and she slept well during the night.

5th.—Awoke much refreshed, and complained little of pain, but only of inability to move the leg. Serum continued to ooze from the leech bites, and her pulse had fallen to 128, and the heat to 100°. Her bowels, which were confined, were freely opened by a purgative draught, and a blister was applied to the thigh.

6th.—The blister rose well, and discharged a great deal of serum ; but its irritation prevented her from having any sleep, and her pulse had risen to 152, accompanied by thirst. The swelling of the thigh, however, seemed less, and she made no complaint of pain.

The blister was ordered to be dressed with poultice, and she got five grains of the Pilul. Calomel, c. Camphora twice a-day, and gtt. xv. of the Tinct. Digital. three times a-day.

9th.—Blister had discharged a great deal of serum ; now almost healed, having been much relieved by the poultices. She now complained of the sacrum being bruised from lying on it.

A lead plaster was applied to the excoriation

with relief; and she was allowed a pound of good beef-tea daily.

10th.—Tolerable night, but she was seized with severe pain below the knee. Diarrhœa succeeded to costiveness. The digitalis was now omitted, and the knee was rubbed with anodyne liniment.

11th.—Leg still painful below the knee, and swelled, but pitted readily on pressure; the thigh also pitted more than formerly.

13th.—Considerable discharge of serum, from a blister applied below the knee.

14th.—Good night. Leg less painful. Discharge of serum continued. In the upper part of the thigh there was a distinct fluctuation in a circumscribed space of considerable extent. Pulse 132, moderately full. Heat 102°. Tongue clean, but rather dry. Mouth aphthous. Excoriation on the back looking worse; it was dressed with egg liniment; and she got port-wine, bark mixture, and an anodyne draught.

16th.—Abscess in the thigh opened, by means of a trocar, and about fifty ounces of well digested pus were discharged. She felt little relief from the operation, but rather more debilitated.

17th.—No sleep, and the wound continued to discharge very abundantly.

20th.—The discharge from the thigh had ceased, but the whole of that side was very much swelled; and she complained much of the knee, on account of pain and swelling. Bruise on the sacrum spreading.

21st.—Abscess had again opened, and the discharge was very profuse. The whole limb, down to the toes, pitted readily on pressure, and gave the sensation of a fluid over the muscles.

After this, colliquative diarrhœa began,—the discharge from the thigh continued;—the bruise on the back extended;—aphthæ became more numerous in the mouth,—and she sunk, hectic and exhausted, on the 7th of July.

Dissection.—The abscess of the thigh was found to extend from the crista of the ilium to within three inches of the knee; and the internal surface of its parietes was in a sloughing state. No other marks of disease were observed. The uterine system was perfectly healthy, and all the other viscera sound.

CASE XXIV.—*Resembling* Phlegmatia dolens; *not fatal.*

The next case of this affection occurred in a young lady, but as I kept no notes at the time, I can state only the general circumstances.—A small tumor was removed from the upper part of the foot of a young lady, and the sac in which it was inclosed was dissected out. At the time of the operation, she suffered more pain than the extent of the wound would have led us to expect; and in particular, she begged her foot to be held firmly, and complained of a pulling and dragging sensation. The wound itself

did well, and gave us no more uneasiness. Some days, however, after the operation, she was affected with a considerable degree of fever, which was ascribed to irritation, and treated accordingly; but the foot looking well, and no mention of any other affection being made, we did not suspect the mischief which was going on.

She next complained of severe pain in her knee and thigh, but we were not then allowed to examine them, and anodyne lotions and fomentations were applied, with temporary relief; but the swelling and pain increasing, along with the febrile irritation, we were at length permitted to examine the limb, and found a general swelling of the whole, especially from the knee upwards, exceedingly painful, not pitting on pressure, but firm and solid, without redness or tendency to point; in short, I cannot describe it better than by comparing it to the state of the limb in *Phlegmatia dolens*.

It was treated principally with leeches, of which a considerable number was repeatedly applied, and by warm fomentations. After some time her health improved, and the disease seemed to be entirely local.

At last, as there was nothing at all resembling the pointing of a phlegmon, or any protrusion or prominence of any particular part, an opening rather unexpectedly occurred in the middle of the inside of the thigh, which gave vent to a great quantity of healthy purulent matter. This was evidently not furnished from any circumscribed cavity, but for

many days it was necessary to press it round from the whole extent of the thigh, even on the outside, as low as the knee, and as high as the trochanter. After this, a phlegmonic swelling pointed in the groin, which suppurated and burst, and there was a threatening of other circumscribed inflammations, one below the knee, and another above Poupart's ligament; but these dispersed without suppuration.

The convalescence was slow, the discharge from the first opening gradually lessening, and her strength returning; but the recovery has been complete, without the least weakness or stiffness of the limb remaining.

CASE XXV.—*From a Sprain; fatal.*—History communicated by Dr PITCAIRN.

J. B. æt. 21, of a robust make, but of sober habits, on the morning of the 25th June 1823, in endeavouring to raise a stone, which was by far too heavy for him, felt something in his right axilla (as he said) give way, and from that time he complained of severe pain in that situation. The next day he continued at his work, but the pain was still severe. On the 27th, Dr P. saw him, when he was complaining of most violent pain in the axilla, extending a little towards the breast. His face was very anxious. Pulse 156. Had great headache, and thirst, and was a little delirious through the night. On examining the axilla, there could be

perceived a deep seated gland swelled to about the size of half a walnut. Twelve leeches were applied immediately; had a large dose of Sulphate of Magnesia, and was ordered a solution of $\frac{1}{8}$ of a gr. of tartar emetic every three hours.

28th.—Was greatly relieved; the pain was not nearly so acute. However, he had a violent accession of his former symptoms; there was now manifest redness of the integuments of the axilla, and of those covering the pectoral muscle. Other twelve leeches were applied.

29th.—Pain is extending very rapidly in all directions; pulse 148. The redness reaches now as far back as the spine; forwards to the insertion of the pectoral muscle, and downwards over the nates. Was bled to ℥xiv. There is now a doughy feel, with very deep seated sense of fluctuation. A very deep incision was now made in the seat of the fluctuation, at which issued blood, and a very small quantity of puriform discharge. Cicuta poultices were ordered to be applied, and frequently repeated.

30th.—No better; pain excruciating. The discharge of bloody serum by the opening has been enormous.

1st, 2d, and 3d July.—Continued very much in the same way; and on the evening of the 4th he died much exhausted.

Dissection.—The body was examined twenty-four hours after death, by Dr Hunter, in the presence of Dr Pitcairn and myself. On stripping the body, the whole of the right side was swollen

from the clavicle to the crista of the ilium. The swelling had no very defined margin, but it seemed to cease at the mesial line over the sternum, and at the anterior edge of the external oblique muscle anteriorly, and to extend backwards perhaps to the spine. The lower edge of the scapula was raised as if by something beneath it. From the axilla to within an inch or two of the crista of the ilium, the cuticle was loose, and in some parts removed, and the exposed cutis was of a livid red. On the scapula, breast and shoulder, the skin was entire, and of its natural colour. The abdomen was tympanitic, and much bloody froth was working out at his mouth and nostrils. There was also a copious discharge of bloody serum, from the puncture which had been made in his side.

The dissection was commenced by making one long and deep incision from the axilla to the os ilium, another from the axilla to the clavicle, and a third from the same point backwards along the lower edge of the scapula, and was prosecuted by deepening the incisions in the parts most diseased. The extent of disease thus displayed was dreadful. The *cutis* every where was swollen and pulpy. The cellular substance, subcutaneous and intermuscular, was much thickened, vascular, turgid with bloody serum, or loaded with reddish purulent matter, which exuded abundantly; and the subcutaneous fat, in consequence of interposed effusion, was seen lying in small distinct masses, as may be often observed in anasarca. The muscles were paler than

usual, and very tender. On the side, over the false and lower ribs, where the skin was most affected, the effusion consisted of serum without any intermixture of purulent matter; but in the region of the pectoral muscles, and of the scapula, the disease was deeper seated, and its progress appeared more advanced. In the substance of the *pectoralis major*, and between it and the *pectoralis minor*, purulent matter abounded, but it was diffused throughout the cellular texture, and not confined in any cyst or abscess. The disease was in its worst form in the axilla, and it burrowed deep beneath the *latissimus dorsi*, and between the *subscapularis* and *serratus magnus*, penetrating every where, not only between their digitations, but among their densest fibres. The glands in the axilla were enlarged, but not suppurated. The periosteum did not possess its natural adhesion to the ribs, but on being divided near their sternal extremities, it retracted and was easily lifted from them. The disease did not extend to the muscles on the humerus, at least the *biceps* and *triceps*, and I think the deltoid, were sound. The basilic vein was particularly examined, and found in no respect different from its natural state.

CASE XXVI.—*Cause uncertain; fatal.*—Communicated by Dr HAMILTON, Senior Physician to the Royal Infirmary.

4th March 1821.—Catharine Reid, æt. 46, nurse

Men's Operation-Ward. Has severe pain of forehead; also in the left side of the chest preventing full inspiration; has slight cough; general soreness of body, prostration of strength, frequent rigors, succeeded by heat of surface. Pulse 96, good strength. Belly open from medicine; much nausea and loss of appetite. Tongue white. Thirst considerable; surface warm and dry; countenance flushed.

Was seized with rigors, headache and weakness of limbs on Thursday the 1st. Rigors have frequently recurred, the last time early this morning. On the 2d, took a vomit, with some relief, and this day castor-oil, which has operated.

5th.—Headache easier; rigors have not recurred. Pulse 90, full and sharpish. Other symptoms as before. ℥xvi. of blood were drawn from the arm.

6th.—Indifferent night, pain of side continuing, and being aggravated towards morning, about ℥xiv. of blood were drawn, first portion slightly sizy, last more so. A blister was also applied to the affected side.

Noon.—Pain of side continues, and there is a painful diffused swelling over the left side of the neck, of the same standing with that of the side. Pulse feeble. Countenance scarcely flushed. No alvine evacuation.

An injection ordered.

7th.—Pain of side continues, but respiration is easier. Swelling observed yesterday extends over the superior part of the chest, is colourless, but painful

upon pressure, slight patches resembling ecchymosis upon different parts of the body. Pulse 120, and small. Tongue clean and moist. Aspect of countenance improved. Bowels moved.

8th.—Died at 4 A. M.

No Dissection.

CASE XXVII. and XXVIII.—*Cause uncertain; fatal.* —Communicated by Mr MACDONALD.

16th June 1822.—Mary Ross, night-nurse, Surgeons' Ward, complains of headache, pain of small-of-back, nausea, and inclination to vomit. There is a soft, rather doughy diffuse swelling, with ill defined indistinct margin, and of considerable magnitude, situated between the humerus and sternum, extending from the clavicle over the upper part of the breast and mamma of the left side. The integuments are of their natural colour over the diffuse swelling, which is very tender and painful even to the touch. Countenance expressive of considerable anxiety. Face flushed. Respiration a little accelerated, but not in a marked degree, and full inspiration does not seem to produce any deep seated pain in the chest. Pulse 120, full and soft. Tongue loaded. No alvine evacuation for two days. Great thirst. Skin natural.

Began to complain yesterday morning, and first observed the swelling this morning. Is unable to ascribe any cause for her complaints, but received a

pretty severe cut in her thumb a few days ago, when cutting grass,—has been since employed in attending erysipelatous patients, but being night-nurse, had little to do in dressing them; nor was there at this time any reason to suppose that her thumb, which healed kindly, was in any way exposed to matter from any description of sore.

17th.—Considerably easier since her breast was fomented,—was bled, but not above 12 oz. could be got. Salts have produced three scanty very dark coloured stools. Lies much on her back. Countenance anxious.

18th.—Swelling and pain above the mamma somewhat subsided,—that in the mamma itself considerable. Little or no pectoral symptoms. Bowels open from senna.

19th.—Six leeches relieved the pain of mamma, but has still pain of left humerus on moving, and the general fulness of the mamma, and even the *pectoralis major* still perceptible. Pulse 94. Tongue foul. Belly slow. Occasional nausea.

20th.—Lies chiefly on her back. Countenance anxious. Pain of swelling aggravated. Twelve leeches to be applied.—*Vespere.* Pain of breast increased, with inability to draw a full inspiration. Pulse 120, pretty full. Face flushed. Countenance very anxious. Bled to 20 oz.

21st.—Blood in first cup sizy. Pain at present seems inconsiderable.

22d.—Several stools from an enema. Very little

pain complained of any where. Pulse 120. Skin moist, but hot. Tongue clean and moist.

23d.—Pulse 100, and sharp.

24th.—Considerable swelling and hardness round the left mamma, with aggravation of pain, which extends to the shoulder. Pulse near 120. Leeches applied. Effervescing draughts, with hyosciamus.

25th.—Rather a better night, but complains still of pain of breast. Pulse 120. Tongue pretty clean.

26th.—Some purging. Pulse 120. Countenance pale and anxious. Breathing quick,—a poultice applied to the breast,—considerable fulness, but no redness. Camphorated emulsion.

27th.—Had a good deal of sleep. Swelling about the mamma not quite so full, and does not complain of much pain. Pulse 120. Skin hot. Three stools. Thirst.

28th.—Again delirious last night. Four dark coloured stools, partly passed in bed. Pulse 120. A livid spot has appeared on the sacrum.

29th.—Died at 8 A. M., fifteenth day.

Mr Macdonald remarked, that, during the whole progress of this disease, the patient never coughed, and preferred lying with the head low, chiefly on the back, sometimes, but rarely, on the side. Breathing was considerably oppressed, especially during the latter days of the complaint.

By the strictest inquiry, Mr Macdonald was satisfied that, in this case, the nurse was not exposed in any way to be affected by any patient in the ward.

Dissection.—Before commencing the dissection, upon pressing the finger along the course of the vein in the left fore-arm, from which she had been bled, a considerable quantity of pus issued from the site of the orifice of the vein, if not from the vein itself.

Upon removing the integuments of the fore-arm, and also of the shoulder, and along the region of the deltoid, back of the scapula, and pectoral muscles, there was, deep-seated among the muscular substance, a very extensive separation of purulent matter, not confined by any boundaries or cellular adhesions; perhaps the greater part of this was over the breast, below and between the layers of the pectoral muscles. There were also cavities in the back of the shoulder that admitted one or two fingers, leading in different directions, filled with purulent matter. There was likewise matter, but in small quantities, along the fore-arm, as if in points here and there. The vein was not traced very distinctly, part of its coats was apparently thickened, but it was not ascertained that there was purulent matter in any part of it. There was a considerable quantity of pus about the elbow-joint. The pus on the fore part of the chest dipped deep at some places among the intercostal muscles, but did not seem to penetrate completely through into the chest. In the chest itself, on the same side, there was a considerable quantity, perhaps 1 lb. or more, of a dirty yellow liquid, with flakes of lymph mixed with it. The lungs on this side were covered with a very thick and extensive coating of lymph, and were compressed by the

fluid mentioned. On making an incision into the substance of the lungs, a very considerable quantity of frothy serum was effused. No recent disease in the left side of the breast, abdomen, or pelvis. Head not examined. Pericardium contained a little more serum than usual. Heart small, and more fatty in its substance than common.

A third nurse, the successor of Reid, died about two months after her, of the same disease, and under circumstances precisely alike, but the journal in which the history was inserted could not be found.

CASE XXIX.—*Fatal; cause unknown.*—Communicated by Dr Nelson, Denny.

A maid-servant in the country, 36 years of age, who, during the preceding ten years, had been repeatedly attacked with *Cynanche tonsillaris*, complained, on Saturday morning 4th August 1821, of intense headache, and went to bed. She remained in bed the greater part of Sunday, and on Monday rose to her work, but was unable to remain out of bed. She made some complaint of her arm, but it could not be very severe, as she still continued to milk a cow morning and evening, though she did no other work. She passed a very restless night on the 6th, and early on the morning of the 7th complained of intense pain in her left hand. On the

8th, she was seen by Dr Nelson from Denny, who found her complaining of insufferable pain along the radius of the left arm, stretching towards the shoulder: there was much swelling in the fore-arm, and considerable redness, but the inflammation seemed to Dr Nelson to be much more of the phlegmonous than of the erysipelatous kind. She was in a very strong fever; the pulse remarkably strong, and the tongue very foul. Dr Nelson, convinced that there was inflammation in, or very near the radius, tending to suppuration, and that the pain and violent constitutional symptoms were produced by the confined situation of the disease, proposed cutting down to its seat, but the patient would not consent. He then took a large quantity of blood from her arm, gave her a purgative, and ordered an emollient poultice to be applied to the whole fore-arm.

On the morning of the 9th Dr Nelson found her not at all relieved, and the poultice had not been applied. He again, but in vain, urged the necessity of a free incision; and having seen decidedly good effects from compression in one case of the same disease, in the tibia, or its investments, and in what he considered as a similar affection, upon a smaller scale, for example, in whitlow, he applied a roller very tightly to the arm, from the points of the fingers to the elbow. After a very few minutes, the patient said she felt much relief from the pressure, and Dr Nelson left her with directions that the bandage should be kept applied, and if the pain returned that it should be made tighter. The pain, however, soon

became excruciating, and, at the earnest desire of the patient, the bandage was loosened. Above the bandage the arm was observed to be very much swelled and inflamed. Her mind was now greatly depressed, and she was removed in a cart to the house of a relation about two miles distant, where Dr Nelson saw her on the 10th. The bandage had been removed, and the old remedy in erysipelas of flour and tow substituted. She had not quite so much pain, but the inflammation of the arm was become much darker, her pulse much weaker, and her countenance sunk. Several vesicles of considerable size, containing a dark coloured fluid, were scattered up and down the arm, both above and below the elbow. Dr Nelson directed the application of yeast poultices to the arm, but the patient died early in the morning of the 11th.

The affection could not be traced to any cause; but at the time the girl was taken ill, her mistress was affected with whitlow, which then prevailed very much in the neighbourhood. Erysipelas did not.

CASE XXX.—*Severe; cause unknown.*—Communicated by Dr FAIRBAIRN.

J. F. about the middle of October 1821, in the course of the evening, complained of sickness and shivering; passed a restless night; next morning was attacked with headache, nausea, and general uneasiness, with deep-seated pain in the left breast

and axilla, which, on inspection, were found to be swollen, inflamed, and painful on pressure. In the course of two or three days, the swelling and inflammation had increased considerably, assuming the appearance of the erysipelas phlegmonodes, with smart fever, and great constitutional disturbance. About the seventh day, the tumefaction extended from the *acromion scapulæ* to the sternum; it conveyed to the finger a boggy feeling, was extremely painful, and pitted on pressure. At this time the fever and headache were severe; the face was flushed; there was slight delirium, with great constitutional derangement. He was treated actively by bloodletting, diaphoretics, and cathartics, and a cold astringent lotion was applied to the inflamed parts. About the 9th or 10th day, an indistinct fluctuation was felt a little to the right side of the nipple, from which, on being punctured by a common bleeding-lancet, there oozed out a small quantity of pus; this being the case, a free opening was made by a bistoury, and a copious discharge followed. On introducing a probe into the wound, it passed readily backwards (nearly its whole length) to the shoulder, forwards, to the sternum, upwards to the clavicle, and downwards to about the eighth rib, shewing the immense extent of the cavity, and its situation between the *pectoralis major* and *minor* muscles. For several days our patient seemed to be doing well; the headache was relieved; the fever greatly abated; the swelling and inflammation much diminished; and the cavity apparently filling up gra-

dually, in short, every thing promised a speedy cure. About this time, however, he was attacked with irregular shiverings, an increase of the inflammation, and swelling of the parts, with a diminution of the purulent discharge, followed by hectic fever and emaciation. On examining the breast, it was ascertained that the matter had not had a free exit, and that deep-seated collections were situated in different parts, all of which it was found necessary to open in the course of the cure. In about three months from the commencement of the attack, the wounds were perfectly healed up, but the arm, from the previous inflammation and position, was so stiff, that the elbow could not be raised more than four inches from the body. However, by regular friction, motion, and the use of the cold and vapour baths, he has at length obtained the complete use of it.

From the great similarity between the above case and that of Mr Cummings, it was conceived that it might have been produced by a puncture or scratch in some part of the body; however, after the most minute inquiry and examination, nothing of the kind could be discovered.

Section II.

General account of diffuse inflammation of the cellular substance.

Causes.

This disease arises from a great variety of causes, some of which produce it more frequently than others, some in a higher degree, and some with less complication.

1. *Venesection.*—The cases of Hugh Snell No. 1., and Ann Robertson No. 2., are most unequivocal examples of venesection producing diffuse inflammation of the cellular tissue, in its most aggravated form, without any complication of veinous inflammation, and with very little affection of the skin. The disease of the arm in M. Dogherty No. 3., E. Harper No. 4., J. Robertson No. 5., and —— Stewart No. 6., was also the consequence of venesection ; but it is doubtful whether it was excited in the fatal case of Mrs Craig, by the venesection performed before her admission, or by a sprain in harvest work.

Many other slight, and some severe cases occurred in our Hospital, but these examples are sufficient to illustrate the various modifications of the

disease from this cause. I may, however, mention, than an eminent architect, to whom Edinburgh owes part of its magnificence, died lately, in consequence, it is said, of an affection of his arm, after having been bled in the country.

In the records of medicine, cases are to be found which I am disposed to refer to this disease, although there are no dissections to establish the fact, and a different view has generally been taken of their pathology; being, according to the prevailing opinion of the day, ascribed to a flux of humours, the prick of a nerve or tendon, or the inflammation of a fascia, vein, or lymphatic.

It is probably alluded to in the following passage of Ambrose Paré *. "For, the late and sad memory of Mrs Courtin, dwelling in the street of the Holy Cross, was in our minds, who, of a vein not well opened in her arm, fell into a gangræne, and total mortification of that whole part, of which she died."—P. 402.

Hildanus has two cases which have much analogy with this disease. A young nobleman of Bern having been bled, was suddenly seized with acute pain, extending from the wound in the median vein over all the arm. In a few days it swelled, "*a venæsectione ad humerum usque mirum in modum.*" The swelling soon subsided, except a tumor, not pulsat-

* The works of that famous chirurgeon Ambrose Parey, translated out of Latin, and compared with the French by Th. Johnson. Folio. London, 1634, Lib. x. Cap. 38.

ing, about the size of a fist, at the wound. When this burst by the use of emollients, it discharged very fetid pus, mixed with serum and blood. Alarming hæmorrhagy occurred every two or three days, followed by gangrene. The arm was amputated successfully near the shoulder, and the state of the parts is thus described: "Ex interna enim parte brachii, ubi vena, quam Basilicam appellant, descendit, *ductus*, cum in parte brachii amputata, tum etiam in ipso trunco, quam bellè observari potuit. Per ductum enim hunc pus fœtidum ex corpore tam copiosè defluebat, ut post amputationem brachii, cauterio actuali putredinem illam castigare necesse mihi esset *;" p. 343. Cent. iv. Obs. 70.—The pus evidently did not flow from the vein, but from a sinus.

The existence of diffuse inflammation is also probable in the other case related by Hildanus. A lady of Lausanne was bled in the median vein. The arm swelled prodigiously. Maturants were applied, and the abscess at last burst where the vein was opened. A very large quantity of pus was discharged, and continued to flow for two months, but she at last recovered *.

Dionis, when speaking of the occasional bad consequences of venesection, evidently alludes to this disease, when he says, "In this case, the next day, we find the arm tumified, full of pains, and swelling,

* Guilhelmi Fabricii Hildani Opera quæ extant omnia. Folio. Francofurti ad Moenum, 1646.

as it were, in our sight, and it will grow to an extraordinary bulk, if we do not endeavour to divert the torrent, by plentifully bleeding the other arm, by cordials internally administered, and the application of proper remedies to stop the course of these humours, to resolve them, and defend the arm from those in which it is involved. These humours are sometimes so outrageous, that I have seen them gangrene the second, and the patient die the third, day *."

Dionis contends, that it does not proceed from pricking a nerve or tendon, as had been alleged, but from a flux of humours to the part in cacochymical habits of body.

Mr O'Halloran † has given an excellent description of the disease of which we are treating, under the title of a Species of Gangrene, subsequent to Phlebotomy. He ascribes it to the pricking of the tendon of the biceps in cacochymic habits.

The first case, (Obs. 27.) he saw on the fifth day after V. S. The patient had worked two or three days after being bled. Mr O'Halloran found no sign of a sore where he had been bled, but the arm greatly swelled from the fingers to the shoulder, and

* A Course of Chirurgical Operations, demonstrated in the Royal Garden at Paris. By M. Dionis. 2d edit. 8vo. London, 1733. Eighth demonstration, p. 379.

† A complete Treatise on Gangrene and Sphacelus, with a new method of Amputation. By Mr O'Halloran, Surgeon. 8vo, London, 1755, chap. viii. p. 90.

a few black spots about the bend of the arm. Two days after the swelling reached the side, though rather lessened in the fore-arm, no phlyctenæ had formed, nor was the discoloration increased; but next day, the ninth, he died. Although the state of the parts was not ascertained by dissection, yet the absolute similarity of the progress of the symptoms to those observed in the cases I have described, leaves no doubt as to their identity.

In his second case (Obs. 28.) the pain commenced the day after the bleeding. On the fifth Mr O'Halloran saw him. The arm was swelled highly, with a reddish streak over the biceps, and reaching up to the shoulder from the bend of the elbow. He could move the joint, nor was the pain great. Three days after, eighth day, the swelling had reached from the arm to the tips of the fingers, and now that side was affected. "The swelling in the hand and fore-arm was quite œdematous and cold, without the least degree of elasticity, nor could any sensibility be perceived in the parts. The length of the arm it was more mixed." At night, the swelling and coldness ascending to the shoulder, with increased oppression, Mr O'Halloran scarified the arm freely, and with complete success.

Dr Le Hérissé * has related, under the title of Inflammation of the Cephalic Vein, followed by Suppuration, a well-marked, though complicated

* Journal de Medecine, &c. par MM. Corvisart, Leroux, et Boyer, tom. xii. p. 417. 8vo. Paris, 1806.

case. The patient was in the hospital for epilepsy. On the 8th October he complained of headache, and was bled in the foot. 10th and 13th, bled from the jugular vein. 16th, bled in the arm. 17th, slight redness and tension near the last puncture. 18th, Some headache continuing, temporal artery opened, and a considerable quantity of blood taken, after which the face and whole skin became colourless and yellowish, with increased debility. Pulse weak and frequent; arm very painful and swelled, from the elbow to the shoulder; redness around the puncture. 19th and 20th, Fever more intense; tongue dry and coated; arm very painful; tension not increased. 21st and 22d, He is constantly in the supine posture; considerable prostration of strength; heat of skin; very frequent small pulse; acute pain in the right side of the thorax, without any external symptoms; respiration a little affected. 23d, Less tension, a little pus had escaped from the lancet-wound; difficulty of breathing increased; pulse weak and very frequent; moribund. Died during the night of the seventh day. On dissection, besides very unequivocal inflammation of the cephalic vein, there was found disseminated in the interstitial cellular tissue of the *pectoralis major* of the same side, a certain quantity of pretty thick greenish pus. In the right cavity of the pleura, there were about 8 or 10 ounces of yellowish opaque serosity, and in the lungs of both sides there were a considerable number of hepatized

portions, varying in size from that of a hazel-nut to a walnut, which were hard, and gorged with a fluid, which, in some of them, was entirely puriform.

Mr Abernethy, in his well-known and valuable essay *, has enumerated, as the most frequent of the ill-consequences sometimes succeeding to venesection, inflammation of the integuments and subjacent cellular substance, (p. 134); but, it is evident, that under this head he alludes only to those slight cases of inflammation around the puncture called *festering*, which occur very frequently, yield readily to proper treatment, and whose worst termination is in phlegmon. But it appears to me, that, under the heads of inflammation of the absorbing vessels (p. 136.), and inflammation of the fascia of the fore-arm (p. 151), Mr Abernethy has described severe cases of cellular inflammation.

Mr Charles Bell † also, alludes to a slight degree of this affection, when he remarks: "3. Another and more frequent occurrence after bleeding, is a swelling and inflammation of the puncture; an erysipelatous inflammation, spreading all over the arm, and a bad suppuration."

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* On the ill consequences sometimes succeeding to venesection. See Surgical Works of John Abernethy, F. R. S. vol. ii. p. 133. 8vo. London, 1811.

† A System of Dissections. By Charles Bell. 3d edit. 12mo. London, 1809. Vol. i. p. 281.

Mr Travers * adopts the opinion and language of Mr Abernethy: "In the human subject, abscess at the wound, and diffused inflammation of the subcutaneous cellular texture, the lymphatics and their glands, and even the fascia producing œdematous swelling, and tension of the entire limb, are certainly more frequent than the inflammation of the vein, as a consequence of venesection, when the wound has been improperly treated or neglected, and the patient suffered to use his arm without restriction." —Page 258.

2. *The application of a ligature to a vein.*— The case of Mary Macgregor †, No. 7., at the examination of whose body I was present, was a well-marked instance of diffuse cellular inflammation, complicated with slight inflammation of the vein; and I am disposed to ascribe it rather to the ligature applied to the vein, than to the other parts of the operation.

A similar complication seems to have taken place in some instances, where the vena saphena was tied, as in the one published by Mr Oldknow ‡. "Large collections of matter formed in the cellular mem-

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* On Wounds and Ligatures of Veins. See Surgical Essays by Astley Cooper, F. R. S. &c. and Benjamin Travers, F. R. S. &c. Part i. 8vo. London, 1818.

† Disputatio Medica Inauguralis, De Venarum Inflammatione. Auct. Gulielm. Dumbreck. 8vo. Edin. 1822.

‡ Edinburgh Medical and Surgical Journal, vol. v. p. 177. 8vo. Edin. 1809.

orane, along the course of the vein as far as the groin, and the patient died two months after the operation, the fever assuming the form of an intermittent."

3. *Dissection.*—The cases of Mr Blyth and Mr Young, No. 8. and 9., even if there was no other, are conclusive as to the production of the disease from this cause. But I am convinced, both from the histories published by others, and from the cases which have been communicated to me when engaged in the compilation of this paper, that diffuse inflammation of the cellular tissue is the most frequent form of that severe and often fatal affection, which occurs from the application of the fluids of a dead human body to a wound or abraded surface.

The cases of the much-lamented Professor Dease, of Mr Hutchinson, and Mr Egan, for which the profession is under the highest obligations to Dr Colles *, are, in my opinion, unequivocal examples of this affection.

Professor Dease had made a demonstration upon a fresh subject, on Saturday, 13th February 1819, at one o'clock. On Sunday morning early he awoke with violent shivering and sickness of stomach, and he complained of acute pain in his left shoulder. Next day a slight fulness was observed above the

* Fatal Consequences resulting from Slight Wounds received in Dissection. By A. Colles, M. D. *See* Dublin Hospital Reports and Communications in Medicine and Surgery, vol. iii. p. 201. 8vo. Dublin 1822.

clavicle along the left side of the neck, which could not bear the slightest pressure. On Tuesday evening a colourless swelling was observed a little behind and below the posterior border of the axilla, which first suggested the true nature of his disease; and Dr Colles found, on examining the thumb the mark of a slight scratch, upon which a vesicle was formed. He was then rather better for some days, but had delirium on Friday morning, and there was a small vesicle on the fore-arm, which remained stationary until his death. On Saturday the entire side, from a very little below the axilla to the hip, was swelled; and the swollen part was observed to be studded pretty thickly with small elevations, which appeared to the eye like vesicles, but were hard to the touch. During this day the delirium was high, and an erysipelatous redness, which commenced on Thursday in the middle of the swelled side, was now brighter, and rapidly extending. On Sunday at noon, the inflammation extended up to the axilla, and on its posterior edge there appeared to be an abscess, but without fluctuation. A swelling was now observed on the anterior part of the right arm, occupying about a hand-breadth of the flexor muscles. A poultice was applied to this tumor, which was punctured at 5 P. M., and discharged about a tea-spoonful of serous fluid, without any relief, and he died at 10 the same evening, being the eighth day from the first accession of the disease. On the day after death, two or three vesicles about half an inch in length, had formed on his back;

the swelling had extended down the thigh; the left arm was swelled, and rather hardened from the elbow nearly up to the shoulder, chiefly along its anterior surface, but there was no redness or vesication on this limb.

It is remarkable that Mr Egan, who had employed himself in dissecting a part of the same subject, had rigors on Sunday evening, followed by febrile paroxysms. On Tuesday, inflammation was observed on the thumb, with pain and erysipelatous redness; the pains passing up the fore-arm. On Friday he complained of tenderness under the border of the pectoral muscle, and an enlarged gland could be felt. On Sunday, an abscess, which had been collecting for some days in the axilla, was now opened, although there was no redness of the skin, pointing or surrounding hardness. The matter discharged was purulent, of an unusually thick consistence, and the cavity proved to be very extensive, passing across from the pectoral to the *latissimus dorsi* muscle. After this he gradually recovered.

The preceding year, Dr Colles had observed a nearly similar affection in one of his pupils, Mr Hutchinson, who had scratched himself while examining a recent body; and in this case, also, the patient complained first of headache, sick stomach, and most acute pain in the right shoulder and axilla, which, on the third day, increased in an extraordinary degree, but confined to the shoulder-joint, with some swelling about the joint and above the clavicle, but without discoloration of the integuments.

The scratch on the thumb was quite free from inflammation; but the cuticle was raised into a small flattened vesicle, which was about half filled with a very white milky fluid. No inflamed lymphatic vessels could be traced along the arm; nor could any enlargement of the glands be discovered, either in the axilla or above the clavicle, although both parts were exquisitely tender. In this state he continued for three or four days, suffering most agonizing pain, and labouring under violent fever, with great dejection of spirits. He at length had some relief from the pain, without a corresponding remission of the fever. In the course of a day or two, however, he first complained of pain along the right side of the thorax, and a diffused erysipelatous redness was observed, commencing at the axilla, which in a day or two more extended as low as the great trochanter. The skin had a doughy feel, and on some places the surface had the appearance of distinct vesicles, but they felt perfectly solid. Nothing like a phlegmon could be discovered; but on the 15th, an incision was made in the hopes of finding some lymph or matter diffused through the cellular substance, but none was discovered. In a few days, however, the symptoms generally subsided, and he recovered slowly, one phlegmon having formed and burst on the inner edge of the biceps, and another over the sixth rib, not far from the spine.

During the present year, three fatal cases have occurred in England. An account of the first has

been published by Mr Travers *, and of the second by Dr Nelson. The third has just happened at Bath, and Dr Barlow has been so attentive as to send me an account of the case.

Dr Pett of Clapton assisted, at 8 A. M. on Saturday, 28th December 1822, in opening the body of a lady who had died of peritoneal inflammation after child-birth. At 9 the same evening he suddenly complained of uneasiness in the middle finger of the right hand. On minute examination, a superficial wound was discovered. Some caustic, and a drop of strong sulphuric acid applied, produced no sensation. An hour after he was in bed, he was attacked with a severe rigor, which lasted for three hours. The pain spread from the finger along the arm to the axilla, and was agonizing. The night was passed in dreadful and uninterrupted suffering. In the morning his appearance was alarming. The finger was white, and without sensation. At noon, an incision was carried through the wound to the bone, but was not felt by Dr Pett. In the course of the day the arm became swollen, and the superficial absorbents conspicuous from inflammation, and the pain extended from the arm to the axilla and pectoral region. The finger in a few hours became discoloured and gangrenous, as far as the second joint, where suppuration of the soft parts afterwards took place. The countenance was flushed, the eye ferrety; vigilance, great anxiety, short

* London Medical and Physical Journal for February 1823, p. 176.

and quick respiration, rapid and voluble speech, and an unnaturally irritable manner, were accompanied by a very moderate acceleration of the pulse, which soon became intermittent, and then irregular. On Tuesday morning (72 hours), the arm had recovered its natural appearance. It was neither swollen nor painful, nor were any absorbent lines visible. A considerable effusion had taken place in the cellular substance of the axilla, and over the pectoral muscle. It was marked by an erythematous blush, was painful, and crepitated on pressure, as in emphysema. The symptoms varied but little, but there was increased difficulty and heaving of respiration, and increased feebleness at each visit. He expressed a sense of confusion, but there was no further evidence of disturbed intellect than the deviation from his characteristic calmness. The fulness at the axillary edge of the pectoral muscle being sensibly increased on Wednesday morning (96 hours), a lancet was pushed deeply into it, but only a bloody serum issued. On Wednesday, about 6 P. M., he died, having survived the injury 105 hours. The body was inspected on Friday, and no recent morbid appearance whatever was discovered *in* the chest or abdomen. The head was not examined, and there is no mention made of the state of the arm, axilla, or thoracic muscles.

Mr J. W. Newby, on the 1st of June, opened the body of a child which died of enteritis, having also, it was said, erysipelas of the abdomen. On the 2d and 3d, he was occupied in his profession,

but complained of great languor. On the evening of the 4th, Dr Nelson saw him. He complained of headache, general pain in the limbs, heat, nausea, and constipated bowels. Pulse frequent, but neither hard nor full. Tongue white. He did not mention having been engaged in dissection, but shewed Dr Nelson a pustule on the back of the left thumb, exactly resembling the small-pox. He had slight pain in the axilla, without tumor, or any appearance of inflamed lymphatics on the arm. He had taken a purgative and diaphoretics, which were continued. On the 5th, he seemed somewhat better, and continued so till the evening of the 6th. The thumb gave very little uneasiness, and the pain in the axilla was much diminished. He had taken some nourishment, and a little wine and water. 8th, Restless night, and complained of a deep-seated pain in the left breast, which assumed a light pink tinge, and the axilla and arm became more uneasy; thumb nearly well. Pulse increased in frequency. Took very little nourishment or medicine during the day, but had an opiate at bedtime. 9th, Some sleep in the early part of the night, but afterwards excessive irritability, with slight delirium. The inflammation of the breast had extended, and was surrounded with a deeper red margin. Pulse 108, more feeble. Tongue dry, and brown. 10th, Very restless night. Though the irritability was considerably lessened by opium, pain of head greater, and that of the left breast much increased, the tumor had extended from the

sternum to the scapula, and from the clavicle to the hypochondrium. Heat of skin much increased. Tongue dry and brown. Pulse 110. Two fetid stools. Very restless during the day. 11th, Arm had swelled during the night, and the tumor on the breast appeared to contain a considerable quantity of effused serum, and was of a brownish-yellow colour. Symptoms as yesterday. 12th, Restless night; all the symptoms aggravated, and he died about 12 *.

CASE XXXI.—*From Dissection; Fatal.* Communicated by Dr Barlow of Bath.

Mr Rainer, a pupil of one of our hospitals, assisted in the examination of a man, who died under peculiar circumstances. His only office was squeezing the sponges. He had no wound, but the cuticle had been slightly abraded from a small pimple on one of his fingers. Next day, the hand felt stiff and painful. Poisonous matter had been evidently absorbed, and inflammation of the lymphatics had commenced. He was bled and purged, and next day kept his bed, the hand being enveloped in a poultice. Inflammation continued to extend along the course of the lymphatics, and even pervaded the cellular substance, as evinced by a general tumefaction of the limb; and the fever increased, accompanied by great constitutional irritability, and con-

* London Medical and Physical Journal for August 1823, p. 177.

derable agitation of mind. The ordinary febrifuge eatment was employed, and, as debility increased, ark was resorted to, and wine administered, appantly with advantage. The limb, however, continued to swell, and at length superficial sphacelus became apparent. On the eighth day, some matter ppearing to issue from a small opening near the bow, an incision was made, from which pus flowed ely. The existence of deep-seated suppuration beg thus manifested, another free incision was made, om which also matter flowed copiously. The reef, however, was ineffectual, for he sunk rapidly, nd died the following night.

While I was preparing these pages for the press, nother medical practitioner in this city has been at off, by a disease which, from the account I have eceived of its progress, I suspect to have been of his nature. At least he was first seized with sudden pain of the right shoulder, extending over the egion of the deltoid muscle. Next day the pain as more intense, and was accompanied with swelling and redness of the shoulder, and the system was lready affected with violent and inordinate fever. On the 4th day, the pain in the shoulder was somewhat relieved by the application of a hemlock poulice; but he continued to complain when the part as pressed in moving him in bed. On the 6th lay he complained of pain near the crest of the ilium, which was relieved by friction and warmth; ut he sunk exhausted on the morning of the 8th

day. About a week before the commencement of his disease, he had opened a body, although he had a sore upon one of the fingers of his right hand, and during his illness a flattened pustule was observed at the part.

The majority of cases have occurred in the examination of bodies to ascertain the cause of death, and when the body had not been interred; and Dr Colles even thinks, and perhaps correctly, that putrefaction rather gives protection to the anatomist, (p. 219.) All the cases which I have observed, or of which I have had accurate reports, except that of Mr Whitelaw and No. 17., occurred after the examination of recent bodies, before they were interred.

It must, however, be admitted, that some bodies are more apt than others to excite the disease; or at least, in several instances, two, and even three, individuals have been affected from the same body. Thus, one body communicated the disease to Professor Dease and Mr Egan; another to Mr Hercy and Dr Hennen *jun.*, and in a slight degree to Dr Dumbreck; another to Mr Young and Mr Blyth; and another to Mr Cumming and Mrs Edie; but the diseases of which the persons died, from whose bodies the infection was received, were neither similar, nor in general malignant. In the examples mentioned, the first was a case of chronic pulmonary affection; the second of dropsy; the third of hydrothorax; and the fourth of puerperal fever. Dr

Dewar was infected by the body of a person who had died of enteritis; Dr Pett from a case of puerperal fever; Mr Newby from one of enteritis; and Mr Burton from one of aneurism. About twelve years ago, Dr Kelly, Dr Anderson, and Mr C. Cheyne of Leith, were all affected in various degrees, after having been engaged in the examination of a woman on whom the Cæsarian section had been performed.

A similar affection occasionally proceeds from the dissection of the carcases of domestic or even wild animals, both healthy and diseased; or at least butchers and cooks are subject to *paronychia gravis*, approaching to this disease, which they sometimes ascribe to punctures received while skinning or cutting up animals. The fatal case No. 21. arose from a prick with a flesh-hook, and No. 20. was excited by a prick with a sharp bone, but it may be doubted whether, in these cases, the application of animal matters to the injury contributed to the production of the disease, although the disease has rarely been observed to arise from a puncture with a clean instrument, except perhaps when a vein has been opened.

M. Morand has related some very curious observations, which are perhaps referable to this disease. Two butchers killed each an ox, for the use of the *Hotel Royale des Invalides*, the flesh of which was eaten with impunity, and without remark. The one butcher was next day seized with erysipelas of the face, terminating in gangrene of the cheeks; and on the

20th day, had acute pain in the left thigh, with swelling on the inside; and on the following day, a similar affection of the right thigh, which suppurated kindly. But the other butcher, who was not taken ill till the second day, was seized with great swelling in both sides of the lower jaw, violent fever and headache; and notwithstanding active treatment, the swelling extended to the neck and cheek, to the extent of threatening suffocation. "La peau de toutes ces parties tendues comme un ballon, parut prise d'un emphyseme luisant, porté au dernier dégré de tension." On the evening of the 5th day, it was still more excessive, and he had frightful stertor. On the 9th, he began to recover, and the disease terminated without any discharge, except from the application of blisters, and the actual cautery. M. Morand subjoins a fact, on the authority of the celebrated Du Hamel, which is still more singular. A large ox, unable to travel, was killed and cut up by a butcher, who having put the knife for a short time between his teeth, was soon after seized with swelling of his tongue, and a closing of the chest, with difficulty of breathing. His body became covered with black pustules, and he died on the fourth day of universal gangrene. An innkeeper pricked his hand with a bone of the same ox. A livid tumor rose on the part; the arm sphacelated, and he died in seven days. Some of the blood fell upon his wife's hand, which became inflamed, very tense, and a tumor rose which was cured with difficulty. Some drops also fell upon the cheek of the

maid-servant, which was succeeded by great inflammation, and considerable swelling, terminating in a black tumor *.

The disease, called by the French *Pustule maligne*, which has been so well described by MM. Enaux and Chaussier †, seems to be analogous to the affection of which we are now considering. It is always acquired from a diseased animal or its carcase. The exciting cause is supposed by these observers to act first upon the *rete mucosum*, producing a vesicle; in the second stage, a tubercle arises in the *cutis vera;* in the third stage, we are told "it gradually penetrates into the cellular membrane." Then its progress becomes rapid, violent, and alarming. "There occurs, at the same time, a considerable swelling, which often extends to a very great distance, but always having a peculiar character, which it is important to comprehend exactly. It is neither inflammatory nor œdematous, but is more allied to meteorismus and erysipelas." "All the fibres of the swollen part seem in a state of spasmodic rigidity. The cellular tissue appears as if distended with air and viscid humours; the surface of the skin is shining; the swelling is elastic and resisting; and the patient, after having felt

* Histoire d'une Maladie très singuliere arrivée à deux Bouchers de l'Hôtel Royale des Invalides; par M. Morand. Histoire de l'Academie Royale des Sciences, année 1766.

† Methode de traiter les Morsures des Animaux enragés, et de la Vipere, suivie d'un precis sur la Pustule maligne. 8vo. Dijon, 1785.

a burning heat and throbbing pain, has only a sense of torpor, tightness, and weight in the part. Thus, the primary tumor seems a focus of infection, which spreads gradually, and extends in all directions; the centre is entirely sphacelous, while the surrounding parts seem sound, although already in a state approaching to mortification; and while the skin forms a superficial crust, the mortification glides secretly in the cellular tissue, and destroys every thing it meets in its way." p. 189.

In a very recent number of a German periodical publication* , there is a short, and not very satisfactory, account of the frequent occurrence of anthrax in the district of Merseburgh toward the end of 1822, and no fewer than ten individuals were known to have died of it. It was ascertained that several of the patients had been occupied in skinning sheep and cattle which had died of sickness in the blood (Blutseuche); and I strongly suspect that carbuncle, when it proves fatal, changes its character from being a circumscribed to that of a spreading inflammation, as is evidently the case in the *pustule maligne*.

4. *Inoculation by Morbid Secretions of Living Animals.*—The *pustule maligne* has been often observed to arise from the application of the morbid secretions of living animals to the skin, of which

* Rust's Magazin für die gesammte Heilkunde, xiv. B. 1. H. p. 100. 8vo. Berlin, 1823.

instances are specified by MM. Enaux and Chaussier. A man contracted it from having introduced his hand into the rectum of an infected cow; a woman from thrusting medicines down the throat of another; farriers from wounding themselves when dressing the carbunculous sores of animals. M. Thomassin even quotes an instance where this disease was communicated from a man to his wife in consequence of her dressing his sores. Although Mr A., whose case is recorded in this volume, p. 439., died of inflamed vein, it is worthy of remark, that he was, according to his own account, infected from an open carbuncle on the back of a man who is still alive and well.

No other instance of diffuse cellular inflammation occurs to me from human morbid secretions, unless we consider as such the symptomatic acute anasarca consequent upon scarlatina, and the extensive critical abscesses which sometimes occur in various contagious diseases, and perhaps some varieties of hospital gangrene; but on this last I cannot speak from observation.

5. *Bite of a Venomous Serpent.*—Without meaning to assert that the symptoms observed in persons bitten by poisonous animals are chiefly to be attributed to diffuse inflammation of the cellular membrane, there is no doubt of its occurrence in those cases where the individual has survived long enough for reaction to take place; and I think that every one must be sensible of the striking si-

milarity of the symptoms arising from injuries in dissection, with those so well described by Sir E. Home *, as having occurred in a man bitten by a rattlesnake in London.

The state of the parts, ascertained by dissection, shewed how extensively the cellular tissue was affected. With the exception of the arm which had been bitten, the body had the natural appearance. The skin was clear and white, and the muscles contracted. The wounds made by the fangs at the base of the thumb were healed, but a puncture made by a lancet was still open. The back of the hand for an inch and a half around the bite in every direction, and the whole of the palm, were in a natural state, except that there was a small quantity of extravasated blood in the cellular membrane. An abscess had formed on the outside of the arm, elbow, and fore-arm, which, when laid open, was nearly six inches in length. Around this the skin was in a state of mortification more than half way up the arm and down the fore-arm, on the outside. Every where else in the arm and fore-arm, from the axilla downwards, the skin was separated from the muscles, and between these parts there was a dark coloured fluid with an offensive smell, and sloughs of cellular membrane resembling wet tow, floating in it. The muscles had their natural appearance every where, except on the surface which was next the abscess.

* Philosophical Transactions of the Royal Society of London for 1810, p. 75. 4to. London, 1810.

Beyond the limits of the abscess, blood was extravasated in the cellular membrane; and this appearance was observable on the right side of the back as far as the loins, and on the right side of the chest over the *serratus major anticus* muscle. p. 82.

Similar appearances were induced in an inconceivably short space of time, when a small animal was bitten by a vigorous snake. Sir E. Home caused a rat to be bitten by a poisonous snake in St Lucia. It died in a minute after the bite. The wounds made by the fangs were marked by two specks of blood immediately below the shoulder-blade. On dividing the skin with a scalpel, the cellular membrane under it was found entirely destroyed; the muscles were detached from the ribs, and from a small portion of the scapula. The parts immediately surrounding the bite were exceedingly inflamed. p. 86.—In a second rat, which survived six hours, the same appearances were observed, but in a less degree.

The poison of some of the East Indian snakes seems to act more particularly on the nervous system, producing scarcely any local symptoms except pain *. Dr P. Russel has, however, in his splen-

* On the Cure of Persons bitten by Snakes. By John Williams, Esq. Asiatic Researches, vol. ii. p. 323. 8vo. London. 1801.

A Case of the Bite of a Poisonous Snake, successfully treated. By John Macrae, Esq. Asiatic Researches, vol. xi. p. 309. 8vo. London 1812.

An Accouut of Indian Serpents, collected on the coast of Coromandel. By Patrick Russel, M. D. Folio. London 1796.

did work, related the case of a Gentoo snake-catcher, who, in attempting to catch a Cobra di Capello, was bitten on the hand about sunset. "He felt instantly a sharp pain in the part bitten, which soon spread on the palm, and upwards on the arm. He was sensible, also, of sickness at the stomach, but did not vomit. In less than an hour, the hand and wrist were considerably swelled, the pain extended nearer the shoulder; he was sensible of a confusion in his head, and disposition to dose." From this time he himself was ignorant for some hours of what passed, but he was restless,—lay moaning and dozing,—startings were observed about his throat,—his breathing became laborious,—he could not speak articulately,—and seemed not to perceive objects though his eyes were open. Between one and two in the morning he had recovered his senses, and in the morning Dr Russel found the hand and arm monstrously swelled; the man had perfectly recovered his senses, and had no fever, he complained only of confusion in the head, of languor, and of pain in the arm. The parts above the punctures mortified first, the gangrene then spread over the back and palm of the hand, and part of the wrist, laying the tendons bare, and forming an ulcer of considerable extent, which, however, healed favourably. He recovered his health in eight or ten days, but it was several months before he regained the use of his hand. p. 82.

In another case, published by Sir E. Home, a sepoy, bit on the back of the hand by a Cobra di

Capello on 15th October, suffered from pain and swelling of the arm, with hardness, and stiffness, and tumor in the axilla, the appearance and bursting of a blister on the back of the hand on the 19th, and of a deeper seated abscess in the same situation on the 20th. He was convalescent on the 22d, and the recovery was gradual, with the loss of the use of the forefinger, which remained permanently extended.

The description of the effects of the bite of the viper by MM. Enaux and Chaussier, is as characteristic of diffuse inflammation of the cellular tissue, as it can be without dissection. It always commences by local symptoms : " Le blessé éprouve d'abord, dans l'endroit de la morsure, une douleur vive et cuisante, qui, comme un trait de feu, glisse, se repand dans toute le membre, et même jusqu' aux organes internes ; l'engorgement, la tension surviennent d'un pas rapide, et sont bientôt portés au plus haut dégré." General symptoms supervene, " Enfin, après un certain temps, la partie mordue s'appesantit, s'engourdit, se couvre de larges taches noires, formées par la rupture des petits vaisseaux sanguins ; quelquefois il s'établit à l'endroit de la morsure, un suintement séreux ; d'autrefois il s'y forme un point gangréneux." p. 109.

6. *Acrid matters directly applied to the Cellular Substance.*—If Sir E. Home were right in his recollections of the effects of the application of white arsenic on the muscles of a dog's thigh, when he

compares to them those induced by the bite of a poisonous snake (p. 86.), this would afford an instance of this disease excited by the direct application of an acrid substance to the part; but inflammation of the cellular substance did not take place in any of the many experiments in which I introduced small doses of the solution of white oxide of arsenic into the subcutaneous cellular substance of cats and rabbits, although these proved speedily fatal, by their general action on the system.

It appears, however, from the numerous experiments of Orfila, that this species of inflammation may be readily brought on by the direct application of those poisons which kill in consequence of their acrimony, such as Bryony root, Elaterium, Colocynth, Gamboge, Spurge-Flax, &c. *

The following case, for which I am indebted to the liberality of my friend Dr Spens, is a remarkable instance of gangrenous inflammation, which followed the application of a very gentle stimulating plaster, often employed with great benefit in such cases. The case occurred when erysipelas was very prevalent.

CASE XXXII.

John Murray, æt. 30., was admitted into the Hospital 15th September 1821, on account of acute ge-

* Toxicologie Generale, 2 Tomes 8vo. Paris, 1814.

neral rheumatism, with swelling of the left knee. He had experienced repeated attacks of this disease, but none of so great severity as the present, which commenced a fortnight before admission. He was treated at first with cinchona and anodynes. Leeches were applied to the left knee on the 27th, and next day the pain was almost gone, and he was allowed full diet. The pain and swelling, however, must have returned, as the knee was ordered to be fomented on the 1st October, and leeches were repeated on the 7th. On the 10th an ammonical plaster was applied. 11th, Knee considerably relieved. 13th, Knee easy when not moved; but considerable pain in the right elbow-joint. 14th, Had profuse hæmoptysis during the night, and this day felt cold and chilly, and complained of slight pain of head. Pulse 108, rather full; had great thirst, no appetite, and vomited his medicine, which was merely a mixture with sulphuric acid, on account of his tendency to perspire. An inflammatory blush also occupied the anterior surface of the left thigh. The ammoniacal plaster was removed from the knee, and a blister put upon the breast, on account of his pectoral complaint. 15th, Breast easier; no hæmoptysis, but had some strangury. The left knee inflamed, and very painful. An emollient cataplasm was applied, and effervescing draughts prescribed. 16th, No vomiting since he took the draughts. 17th, A tolerable night; but there was a pretty extensive livid spot upon the left leg. Pulse feeble. Thirst

rather abated. Got mixture of cinchona with sulphuric acid; to be seen by the surgeon. 18th, Tolerable night. Tongue white. 19th, Took nothing but a little wine. Hands cold. Pulse not to be felt at the wrist; he died at 3 P. M. Body not examined.

In the case of Harper, the disease was reproduced in a slighter degree by the application of camphorated oil.

7. *Pricks and Wounds, without the recognized application of any morbid matter.*—By this cause No. 24. was induced; and I am disposed to think, that the extensive inflammation and suppuration which have frequently resulted from operations to remove ganglions, as well as those which have been ascribed to wounds of tendons and fasciæ, have, in general, been instances of diffuse inflammation of the cellular membrane; but my limited experience does not allow me to speak more positively on this head. Whether the skin or cellular tissue was the chief seat of the disease in the following case, may admit of doubt.

CASE XXXIII.

John Ellis, æt. 50., was brought into the Hospital on 10th September 1821. The left arm, from the fingers to near the shoulder was much swollen, and of a dark and dusky red colour. The fingers

displayed in some parts vesicles, and in others sphacelated spots. The face was pale and collapsed. Breathing short and laborious. Pulse quick and full; and he complained of intolerable fatigue. The disease had commenced four days before in one of the fingers of his left hand, in consequence of a cut with clean bottle-glass. He was bled, got an anodyne draught, and anodyne fomentations were applied to his arm.

11th, The blood drawn was covered with a yellow coat. He passed a good night, and in the morning some whisky was administered to him. At the visit, the arm was nearly in the same state as when admitted, but he felt easier: had some headache. Pulse 120, rather feeble. Skin cool. Tongue dry and foul. No stool. Laxative pills, and, if necessary, a glyster, were prescribed, with cordials, and anodyne fomentations; but he died in the course of the day.

The bad consequences which often arise from the scarification of the feet and legs in anasarca, are commonly ascribed to erysipelas; but I think it will appear, upon more accurate examination, that it is the inflammation of the subcutaneous cellular texture, and not that of the skin, which is to be dreaded.

8. *Sprain.*—Dr Pitcairn was so obliging as to give me an opportunity of seeing the young man, Case 25, and of witnessing the examination of the

body, which adds another to the causes, already too numerous, of this intractable disease. The history I have reported, as communicated to me by Dr Pitcairn. The appearances were noted by myself immediately after the dissection, which was performed by Dr Hunter in our presence.

9. *External Violence.*—Whether the spreading gangrene which sometimes follows bruises, severe surgical operations, and other kinds of external injury be strictly referable to this disease, I cannot presume to offer an opinion, as no case of this kind has fallen under my own observation. The case of A. Sutherland, No. 22., may be referred to this head, although the effusion into the cellular tissue was generally serous, or sanious, and was purulent in a few places only. I am also informed, that brewers' servants are often admitted into the London hospitals, in consequences of bruises on the legs, which, especially in summer, are apt to extend up the limb, and sometimes prove fatal from subcutaneous suppuration.

10. *Spontaneously, or from less obvious causes.* Sometimes severe, and often slight cases of this disease, occur without any apparent cause. No. 23, 26, 27, 28, 29, and 30, are examples of this kind; and notes of another well marked instance have lately been communicated to me by Mr Syme, Teacher of Anatomy and Surgery, who was one of the clerks resident in the Hospital when it took place.

CASE XXXIV.—*Fatal.*

Cath. Macdougal, æt. 31., was brought into the Infirmary towards the end of September 1821. The left arm, from the wrist to the shoulder, was swelled and very tense; the surface being covered, for the most part, with very small elevated vesications, of a yellow colour; and over the breast and back there was unequally diffused, dark, dusky redness; the countenance was thin, dark, and particularly anxious. Respiration much hurried. Pulse small and frequent. Tongue dark and furred. The patient complained of pain in the arm, and want of sleep, but seemed mostly oppressed with an insufferable feeling of fatigue and anxiety. She had been taken ill five or six days before admission, and had been gradually getting worse and worse. Cold saturnine lotions were ordered for the inflamed parts, and salts to be taken next morning.

Early next day, it was ascertained that a remarkable change for the worse had taken place. The redness now extended all over the side of the body, as far down as the loin; and large dark coloured *bullæ* had risen from the parts previously inflamed. The respiration was still much hurried, being performed 40 times in a minute. The pulse at the wrist was gone, and a peculiar cadaverous smell could be perceived. (Mr Syme remarks, that this smell was particularly remarkable in his fellow-clerk Mr

Hercy's case, with which, he thought, Macdougal's strikingly agreed). At noon she was delirious, and at half-past two she died.

To this head I would refer many cases of *Erysipelas Phlegmonodes*, which ought, in my opinion, to be considered as a complication of the cutaneous affection with cellular inflammation, the latter being, on many occasions, the most important disease. In proof of this, I can adduce no higher authority than Dr Thomson, who, speaking of mortification of the cellular membrane, says, "It not unfrequently happens in *Erysipelas Phlegmonodes*, that the cellular texture, which enters between, and connects together, different parts, such as muscles, tendons, nerves, bloodvessels, &c., becomes dead, by which the continuity of their parts is destroyed," p. 512. It is the same affection which Dr Hutchinson treated so successfully by free incisions: "If, however, gangrene should not take place, we have invariably found the disease (*Erysipelas phlegmonodes*) to terminate in effusion or suppuration between the integuments and muscles. These secretions, from being so situated, break down the cellular and vascular connections between those substances, to a greater or less extent, according to the height the disorder has attained; so that immense bags of matter are sometimes formed under the integuments, which may be moved, not only all round the limb, by changing its position, but, as I have often wit-

nessed, from the ankle to the trochanter, and over the *glutei* muscles *."

The phenomena of some cases of *Phlegmatia dolens*, of which Mrs Monro's case was an example, appear to me to be explicable only on the supposition of extensive cellular inflammation. This opinion has already been ably maintained by Dr Hull, of Manchester.

" No doubt remains in my mind, that *the proximate cause consists in an inflammatory affection, producing suddenly a considerable effusion of serum and coagulable lymph from the exhalants into the cellular membrane of the limb ;*" p. 204. †

Dr Hosack, of New-York, considers *Phlegmatia dolens* as " an inflammatory disease, not only affecting the limb, but the whole system," and not confined to the lymphatics, but appearing in every part of the affected limb. Agreeably with this opinion he has named it Cruritis ‡. He has given an abstract of the histories of nine cases. The last of these occurred in a male, and terminated fatally.

Professor Casper of Berlin, endeavours to reconcile the opinions of Dr Whyte and of Dr Hull. " Omnibus enim rite perpensis, morbus noster in

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* Medico-Chirurgical Transactions of London, vol. v. p. 280.

† An Essay on Phlegmatia dolens. By John Hull, M. D. 8vo. Manchester 1800.

‡ Observations on Cruritis, or Phlegmatia dolens. By David Hosack, M. D. Professor of the Institutes and Practice of Medicine in the University of New-York. 8vo. New-York 1822.

inflammatione systematis absorbentium, in nonnullis casibus fortasse *simul etiam telæ cellulosæ* firmatus mihi videtur *;" p. 33.

Indeed, those cases which have been examined after death, shew the same destruction of cellular texture, the same extensive suppuration that we observe in *Erysipelas phlegmonodes*; so that these diseases differ chiefly in their exciting cause, and in the total absence of cutaneous inflammation in most cases of *Phlegmatia dolens*.

This view of the pathology of this disease has been strikingly confirmed by the dissection of a case by Professor Casper, in which the cellular membrane was extensively inflamed, and the bloodvessels, on careful examination, ascertained to be without disease.

" Postridie ad dissectionem me accinxi. Crurum tumor adhuc idem erat, ubique æqualis; omnes vero ceteræ cadaveris partes valde affectæ inveniebantur. In thorace pulmones fere sani videbantur nonnullis tuberculis in dextro superiore lobo, et vomica sat magna cum bronchiis communicante exceptis; cordis substantia muscularis insigniter flaccida erat. In abdomine aperto hepatis totius incrementum primum notatu dignum observatum est; parenchyma molle erat et pulposum, ita ut digitus facillime idem perforaret. Lata uteri ligamenta insigniter vasculis instructa videbantur, superficies interna

* Commentarius de Phlegmatia dolente. Auct. J. L. Casper. 8vo. Halle, 1819.

uteri sordido-viridi colore utebatur, mollis erat, gangrænosa, putrida. Orificium uteri tumidum erat, lividum, gangræneseens, sicuti tota vagina. Crurum cute tunc perscissa, tela mucosa visa est paullo laxior (aufgelockert), ubique liquido subfusco, odore carente, impleta; glandulæ inguinales sanguine solito abundantiores et tumidiores reperiebantur; musculi flaccidissimi erant, et in crure et in aliis partibus. Percaute reteximus vasa magna sanguifera, omnino vero sana visa sunt, et in externa et in interna superficie. Eodem modo nervi crurales ischiadici, &c. denudati sunt: ne minimum quidem extra morem erant, nec tumidi, nec rubefacti. Memorabile tamen est, conditionem morbosam telæ cellulosæ non in solis cruribus, sed etiam per totam pelvim usque ad muscul. psoas, iliac. intern., &c. visam esse. Mortuæ propinqui non permiserunt, ut cerebram medullamque spinalem etiam perscrutaremur," p. 54.

Among the obscure causes of diffuse inflammation may be enumerated contagion and those circumstances which may render it more prevalent at certain times and in certain situations than in others.

There does not appear to me any ground for inferring that it is capable of being propagated by contagion. The only fact which could lead to the suspicion of its being contagious, is that mentioned by Dr Nelson of London, as connected with the case of Mr Newby. "It is worthy of remark, that, during Mr Newby's illness, Mr Jackson, his assistant, had an inflammation of the fauces, of an erysipela-

tous appearance, which terminated in suppuration of the tonsil. His pupil had an attack of low fever, which continued about a week. The housemaid was severely affected with *Cynanche tonsillaris*, which terminated by resolution. The nurse had a slight attack of pyrexia, with pain and stiffness of the neck, on account of which she went home for a day or two, but returning to the house, she was attacked with *Erysipelas phlegmonodes*, which proved fatal. Another woman, who assisted in the room, had also the *Erysipelas phlegmonodes*, but recovered." Dr Nelson concludes his intesting history with asking, " Was the disease which destroyed Mr N. erysipelas, produced by inoculation affecting the cellular substance of the arm, and parts adjoining ? Did the five cases which occurred during his disease, and after his death, arise from erysipelatous contagion ?" It must be admitted that the coincidence of so many persons being affected, though with different forms of disease, is remarkable. According to the statement in the newspapers, Mr Rainer derived his disease from the body of a man who died in consequence of a needle being thrust to such a depth into his breast, that it could not be extracted. It is not stated of what disease the man actually died. It may have been diffuse inflammation. But I cannot consider these examples as a sufficient proof of contagion ; on the contrary, in none of the other fatal cases, was there any evidence of a communication of disease from the persons affected to those in the closest and most

timate connection with them, nor did the slightest cident occur to myself, or any of the gentlemen whom any of their bodies were examined. Acute nasarca, a modification of our disease, is a symptom scarlatina, which is certainly contagious. Other seases, which sometimes produce it, as *pustule ma-gne* and carbuncle, are sometimes propagated as if contagion; and the history already quoted from I. Morand has some resemblance to what was ob-rved in Mr Newby's case.

It is more probable that the disease partakes of ne nature of an epidemic. At least severe and tal cases have been more common of late than at ny preceding period. Nor can I ascribe this to ne disease having been described under another ame, or having escaped observation, for the symp-oms are too severe, and the death, when it hap-ens, too sudden, to be overlooked; and yet we find ew such cases recorded under any denomination.

The causes why this disease should be more fre-uent at one period than another, are quite un-nown to us. It does not seem to be connected vith temperature, or any of the ascertainable at-nospheric states; for it has occurred at all seasons f the year. Nor can it be ascribed to any defi-iency of wholesome food. It is, however, worthy f remark, that severe and fatal cases occurred vhen other congenerous, though slighter diseases, vere very common. Thus, in Edinburgh, a great dis-osition to Erysipelas has been observed since 1820, ot only in the Hospital, but throughout the city.

Whitlow was prevalent in the country when Case No. 29. happened, and carbuncle and *pustule maligne*, are often epidemic in various parts of the Continent. I have already noticed, from Rust's Magazine, the frequent occurrence of fatal carbuncle in Merseburgh, in autumn 1823. In some patients it was traced to inoculation, but in others the ætiology was more obscure, and hence Dr Rudolph, is disposed to ascribe the frequent appearance of *Anthrax* to a particular epidemic constitution. He observed, that *Furunculus* had been very frequent the preceding summer; and it is known, that this latter form of cutaneous inflammation has repeatedly occurred epidemically; hence he is of opinion, that the subsequent *anthrax* was connected with the preceding *furunculus*.

Our observations are too few to enable us to draw any conclusion as to the influence of situation, and those causes which produce endemic diseases. The greatest number of severe cases which have come to my knowledge, have occurred in Edinburgh, but this was to be expected. The disease has also been observed in Dublin, London, and in Paris, but I have not met with any unequivocal case in the recent medical publications of Germany or Italy.

It is generally supposed to occur more frequently in large cities than in the country, and more frequently in crowded hospitals. This may be true, but in such situations the causes are more frequently applied, and when the disease occurs it is known more generally. Some causes, such as the venom of

serpents, are so powerful, as to excite it in every instance when applied; others also, as the fluids of dead bodies, are generally too powerful to be influenced by situation; but the weaker causes, such as an epidemic state of the atmosphere, may operate more readily in some situations than in others, and the frequency of erysipelas in hospitals, if we do not admit this disease to be contagious, is a proof of it. The occurrence of the death of three nurses in our hospital within about a year, to none of whom any of the more active causes had been applied, is certainly very remarkable, but No. 29. proved fatal in the country; and O'Halloran's cases from venesection took place in the country; No. 6., and the gentleman whose case is alluded to in page 549, were bled in the country; and Dr Nelson, of Denny, informs me, that he has met with several cases of very extensive inflammation in the arm after bleeding, which always terminated in suppuration, when the inflammation was not subdued by the ordinary means. In one case, in particular, the collection of matter was so large, that it encircled the whole arm, from the elbow downwards: but it did not point at any particular part, and for a time was not supposed to be matter by the medical attendants. In Nos. 22, 32, 33, and 34, the disease was at its height before the patients were brought into the Hospital; and Nos. 21, 24, 25, and 30, ran their whole course in various parts of the City.

In animals, a disease somewhat similar is observed,

at least if I understand its pathology, from the very brief descriptions we have of it. Thus, the celebrated Ettrick Shepherd, speaking of the different kinds of Braxy, or inflammation, which are so destructive in store-farms, calls one kind *bowel sickness*, and another, *sickness in the flesh and blood*, and says, that the difference is only discernible on opening the carcase. " In one, the stomach and intestines only are principally infected, while a small part of the inflammation only is communicated to the flesh. In the other, the fleshy parts are all swollen and corrupted, while a small proportion only of the inflammation is communicated to the stomach and bowels;" p. 19. In another place he says, " Stragglers will die thus infected, while hogs are dying fast of the former case in the same flock; and all the old sheep which die, as well as the hogs which fall in May, are carried off by this species;" but, upon the whole, not one to ten which die of the former. He likewise tells us, that " it is the same trouble with that which prevails amongst the young cattle in the west of Scotland, and is denominated the *Black Spauld*," p. 25.; and I have added, in a MS. note to my copy of Mr Hogg's Essay, but I do not remember my authority, " Suspected to be the *Garget* of the English, and to arise from external injury, causing inflammation and mortification."

Upon the subject of the *Predisposing Causes* I have very little to offer. The humoral pathologists

had no difficulty in this particular. Thus, Dionis says, that it " happens to cacochymical persons, surcharged with humours, which are always ready to throw themselves into any part."

O'Halloran uses nearly the same language, " In fact, in cacochymic habits of body, when the humours are ready to fall upon any part, *quâ data porta ruunt*, if a hurt happens, suppose by pricking a tendon in bleeding, for want of sufficient elasticity of the parts, or a proper sensibility in the *genus nervosum*, or both," &c.

In modern times we use the expressions, bad habit of body, scrofulous diathesis, worn out constitution, and general debility, without having much more precise notions of their import.

As a matter of fact, connected with this subject, it is worthy of notice, that the two first patients whom I lost by mortified arm, Snell and Ralston, were both affected with *Diabetes mellitus*, and both of what is called a scrofulous constitution. It is also said that some persons are more liable than others to have their hands affected by being engaged in dissection; some cannot handle the viscera of a recent body with impunity, although their skin be perfectly entire, while others have often pricked and cut themselves without any bad consequence. Leech-bites always fester on some skins, and there are others which can scarcely be affected by a sinapism. But the facts are much too few to enable us to hazard any opinion concerning the nature of these idiosyncrasies. Hundreds of persons, of every recognized variety of

natural constitution, and in almost every variety of disease, including typhus and erysipelas, are bled, for one whose life is endangered by the affection of which we are treating, and what is a stronger argument against the influence of constitution is, that most persons who at last suffer from venesection have been bled before, and in many cases shortly before, without being affected; and in very many cases, even those in which the disease has been excited by venesection, a vein has often been opened in the other arm as a remedy, and in no instance has this second wound given any trouble; and leech-bites and blisters heal kindly even on the affected part.

Symptoms of the Disease.

The progress of the disease, especially in its commencement, is different according to the causes by which it is excited. In a few cases, the disease commences by constitutional symptoms, such as commonly indicate the invasion of typhous fever, or the appearance of an exanthematous eruption. After these have continued a day or two, intense pain, with diffuse swelling, and more or less redness, occur in some part of the body, most commonly in the hand or arm.

In Cases No. 25. to 30. inclusive, and 34., in which there was no local cause ascertained, the disease, after preceding fever, commenced directly in the part

affected with diffuse inflammation, which in No. 29. and 34. was the hand and whole arm, but in all the others the axilla, shoulder and breast.

Primary Affection.

In the majority of cases, the constitutional affection is preceded by a local disease. This is excited by a variety of causes acting on the part. In some cases the disease commences in the part, and extends from this gradually and regularly towards the trunk of the body, or also in the opposite direction, without leaving any interval apparently sound. The progress of this variety of the disease is very different, being in some cases confined to the limb, or part of the limb, to which the cause is applied, but in others proceeding rapidly to the trunk, and terminating fatally. This is the common form of the disease from punctures, mechanical injuries, and chemical irritants; it also occurs from dissection, though rarely in cases which prove fatal. Nos. 10, 15, 16, 17, 18, 19, 20, 22, and 24, may be considered as examples of this variety, and perhaps Mr Rainer's should also be included.

In a few of the cases induced by venesection, the lancet-wound seems to heal as readily as usual. In some it remains permanently united, but in others it opens again, or at least the wound of the skin gives vent to the discharge of some purulent matter. More commonly union does not take place. The lips of the incision remain swol-

len, a little red and everted. Some ichorous or purulent discharge appears, and the local disease extends continuously from the wound.—Snell was bled on the 8th December; the local affection was first noticed on the 12th; and on the 14th the swelling extended over the whole arm.—Ralston was bled on the 24th of May; the wound was complained of on the 26th, and, at the same time, the system was suddenly affected in the highest degree, as if it had been poisoned. The swelling extended gradually, and reached the shoulder on the 28th. —Harper was bled on the 18th; the first complaint was made on the 21st; and on the 23d the swelling reached the axilla. Mrs Craig was bled on the 1st September, and complained on the 3d. Jane Robertson was bled on the 17th, and did not make any complaint till the 24th.

In the most alarming variety, the affection follows the usual progress of inoculated diseases. First, a pustule or vesicle takes place at the part to which the poison is applied; then there is high constitutional disturbance, corresponding to the eruptive fever of exanthematous diseases, followed by severe diffuse inflammation in some part of the cellular tissue, rapidly extending in all directions, but not continuous with the primary local pustule, which often gives little uneasiness, and generally heals very quickly.

In these cases, the manner in which the affection is propagated from the local injury on the fingers to the part which is the principal seat of the secondary

disease is doubtful. The common opinion is, that inflammation is excited in the lymphatics of the part by the direct application of the cause, and that the inflammation is propagated along them to the glands in the axilla. By others it may be supposed that the same process takes place along the veins. But, besides, that on dissection no inflammation, or effect of inflammation, has ever been detected in either lymphatics or veins, in cases free from complication, the phenomena of the disease observed during the life of the patient, do not support the idea, that any order of vessels propagates the disease by actually undergoing the process of inflammation.

When the disease proceeds from inoculation, the constitution is very soon affected; and in most cases violently. Symptoms of constitutional irritation appeared in Professor Dease in about twelve or fifteen hours; and in the greater number they occurred during the first or second days. Mrs Edie had no fever till the fourth day; and, if I am right in my conjecture concerning the nature of the case alluded to in page 560, the poison remained latent about a week.

Now, this great and rapid disturbance of the system is excessive when compared to the existing degree of the local affection, hitherto of little extent and severity, and incompatible with a morbid action propagated along the tissue of any order of vessels. There was commonly very little affection of the fore-arm, or arm, and there was rarely any

obvious direct connection between the injury and the inflammation of the axilla and shoulder, so that the connection between the wound and the disease was doubted, and in some of the cases it was altogether overlooked, or was denied. Mr Hutchinson's arm was never affected. There were no inflamed lymphatics, or enlargement of the glands. In Professor Dease no affection of the arm could be traced. In Mr Egan the pain passed from the wounded thumb along the back of the fore-arm, without any other symptoms of its being affected. In Mr Blyth and Mr Young I ascertained that there was no affection of the arm, or fore-arm, so that we were at first doubtful whether the dissection was in any way connected with their illness. In Mr Hercy the secondary local affection began about the elbow joint. No hardness was observed in the course of the lymphatics in Dr Dewar's arm. In Mr Cumming the arm exhibited no marks of inflammation, but there was an inflamed gland above the inner condyle of the humerus. There was some swelling and tenderness between the elbow and shoulder in Mrs Hodge. In Mr Newby there was no appearance of inflamed lymphatics in the arm. In Dr Pett and Mr Rainer, although fatal cases, there was more evident connection between the primary injury and the secondary inflammation. But it may be doubted whether the peculiarities of these cases did not arise from the treatment.

A very slight cut or scratch, or abrasion of the

cuticle, is sufficient to admit the poison into the system. In some cases, as in that of Mr Cumming, no injury could be detected, and in many, the person inoculated merely touched the infecting matter. In Mr Hutchinson's case the scratch was quite free from inflammation, and the cuticle raised into a small flattened vesicle, about half filled with a very white milky fluid. Professor Dease was not conscious of having injured himself; but on the fourth day a vesicle, filled with a fluid of a milky whiteness and consistence, was discovered. In Mr Egan, on the third day, there was inflammation of the thumb, but no vesicle or pustule seems to have risen. In Mr Blyth and Mr Young the scratches gave some pain in a few hours after the dissection, but were almost healed by the time the disease began; and in the latter no remains of the primary injury could be detected when the body was examined. A pustule was observed on Mr Hercy, but it gave him no uneasiness. Dr Dewar applied caustic to the wound immediately, and seems to have taken no more notice of it. On Mr Cumming's finger a pimple arose the next day, from which oozed a little sero-purulent fluid. The scratch on No. 17. soon healed. Mrs Hodge had little distress from her punctured thumb. In Dr Pett strong caustics were immediately applied to the wound, to which it seemed insensible, but intense pain succeeded. In Mr Newby the pustule on the thumb gave very little uneasiness. Mr Rainer felt the hand stiff and painful next day.

Secondary Inflammation.

When the cause of the disease was applied to any part of the hand or arm, the seat of the secondary inflammation was chiefly in the axilla, extending towards the sternum, up along the neck, and downwards along the side, as far as the haunch-bone, and even, in Professor Dease's case, to the thigh of the affected side. In most cases, it was confined to one side; and in Snell in particular, the termination of the diseased state at the mesial line on the sternum was defined. In some cases, however, it passed by proceeding continuously along the affected texture to the opposite side; and in others it was translated from one side to the other, or from one part to another, not by the regular spreading of the inflammation, but by metastasis, as we often see take place in rheumatism, gout, or erysipelas. Thus in Dogherty No. 3., the wrist of the left arm became affected on the 27th day after the disease had commenced in the right, and the left knee was also affected. In Dr Dewar, the disease commenced in the left axilla, and was in a few days afterwards translated to the right fore-arm; and in Mr Cumming the left arm, which was first affected, was relieved, before the disease attacked the right arm. In Professor Casper's case, the *phlegmatia dolens* affected first the one, and then the other thigh.

When the swelling reaches the axilla, whether it advance to it progressively from a lancet-wound in

venesection, or appears at once after dissection, it is always of a very peculiar and characteristic nature. It is diffuse and extensive, without the slightest tendency to point, being only flatly elevated above the neighbouring sound parts, and its limits are rarely defined by a margin, which, however, is sometimes raised. It is smooth and equal, having no central hardness, no *focus* where it is more active. If the glands can be felt enlarged, it is only in a slight degree; and, in general, no cords which can be supposed to proceed from enlarged or thickened lymphatics, veins, or other vessels, can be traced under the surface. But it is the general feeling and sensation which the swollen part gives to the touch, which characterises it, and which depends upon the effusion of fluid generally into the cells of the cellular membrane. It is tense, but soft in a greater or less degree, and when pressed by the finger, does not pit, but gives a sensation between the resisting hardness of phlegmon, the yielding softness of œdema, and the elasticity of emphysema. The epithet of *boggy* applied to it by Mr Lizars, appears to me exceedingly expressive of its nature. Like a quagmire, it conveys the idea of a firm surface, with a spongy, unsound bottom, loaded with fluid. Dr Colles seems to have been struck with the peculiarity of the swelling in Mr Hutchinson's case, which he calls *doughy*. and to have at once recognised its peculiarity in those of Professor Dease and Mr Egan. Dr Kinchela, who had attended Mr Hutchinson, was carried to visit Mr Dease, and

" on seeing the peculiar swelling along the side of the thorax, instantly pronounced this to be the same disease as Hutchinson's ;" p. 218. In the same manner, having seen the peculiarity of the swelling in Snell, I recognised it immediately in the cases of Ralston, Mr Blyth, Mr Young, Mrs Craig, and others. Mr Macdonald also remarked it particularly in all the Hospital nurses ; nor has it escaped the notice of others, although variously described. Morand calls it a shining emphysema, in a state of extreme tension, and Enaux and Chaussier give a detailed description of the swelling, which, they correctly say, it is of importance to understand. Although various observers have compared it to emphysema, Mr Travers alone found that it crepitated on pressure, in the case of Dr Pett. But this could not happen unless the cells contained air. Even in Mrs Craig's case, there was no proper crepitation, and the emphysematous tumors were an effect, not a symptom, of the cellular inflammation. Another striking character of the swelling, is the obscure sense of fluctuation, which has led not only myself, but Sir E. Home and others, to make deep punctures, with the view of giving vent to a supposed collection of fluid, when there was nothing to be discharged.

Pain.

The pain in the swollen part, in every instance, was exquisite. In Mr Hutchinson it was his chief

complaint, when there was neither discoloration of the skin nor phlegmon. In Mr Dease, also, the pain preceded any redness, which, when it did occur, was partial. In the cases which I have seen, the pain was always independent of any cutaneous inflammation, and obviously arose from sudden distension of the soft parts beneath, in fact, from effusion into the cellular membrane. In Mr Blyth, Mr Young, and J. B., the pain in the axilla was the first alarming symptom. Dr Pett suffered so much from pain along the arm to the axilla, as to lead him to observe, that he had never before known what pain was. Mr Hercy suffered less from pain than is commonly the case.

Cutaneous Inflammation.

In some cases, the secondary inflammation runs its course, and terminates in extensive suppuration, without any redness of the skin being perceptible; and in all true cases of this disease, the cutaneous inflammation is secondary, and the result of the progress of the disease from the cellular tissue to the skin. Thus, in No. 25., the skin of the whole side was generally inflamed, and the cuticle separated; but this was the part to which the disease had last extended, and in which it was least advanced, while the skin of the axilla, and over the pectoral muscles and scapula, where the disease first appeared and had made the greatest progress, was never even

discoloured. The same observation was made in almost all the other cases; and it is also clearly established by Dr Colles. In Mr Hutchinson, during the first and alarming period of the disease, no redness of the skin was seen. It never appeared on the parts most severely affected; but after the disease began to remit, a diffused erysipelatous redness extended itself from the axilla, as low as the great trochanter, corresponding in this respect exactly with the case of Mr Blyth. When Professor Dease suffered the most exquisite pain in his shoulder, there was no discoloration of the part, and the redness commenced on his side, in the form of an erysipelatous blush, which afterwards became more extended and stronger.

In the Hospital nurses, there was no affection of the skin, although the existence of most extensive cellular suppuration and gangrene was positively ascertained in one of them by dissection. In Ralston, the skin over the pectoral muscles had rather a livid appearance, and in Mr Newby it had a light pink tinge, with a deep red margin. Vesicles or bullæ seldom appeared until the disease was very far advanced in its progress. They were in general solitary, sometimes remote from the cellular disease, of considerable size, and occasionally filled with bloody serum.

I have never observed the vesicular-like tubercles which were seen in the case of Mr Hutchinson and Professor Dease; but all my observations confirm, in the strongest manner, Dr Colles's observations

(p. 217.) on the slight connection between the affection and any redness of the skin observed, and the total difference of the disease from erysipelas.

As connected with the affection of the skin, I may here observe, that, in several cases, it was so far from being hotter than natural, that it is expressly stated to have been at first unusually cold. This is particularly remarked by Mr O'Halloran, especially in his second case, in which the swelling of the arm and hand is represented as œdematous, cold, and insensible. Sir E. Home was also struck with the coldness of the man's arm bit by the rattlesnake. I have never observed this; but it may be easily explained by the sudden effusion which takes place into the cellular substance, and thus diminishes the connection of the skin with the sources of animal heat.

Fever.

In most instances, the affection was accompanied with excessive constitutional irritation, and a very high degree of fever, which well deserved the appellation of Typhoid, from the extreme muscular debility and depression of mind which accompanied it. Indeed, on some occasions it was scarcely possible to determine, whether it was a case of this disease, or of typhous fever with peculiar local symptoms.

The symptoms and progress of the fever presented considerable varieties. It sometimes commenced

insidiously, sometimes tumultuously, but, in most of the severe cases, soon reached its height. The chief peculiarities I observed were the supine posture, with depressed shoulders, in which the patient almost always lay, without turning to either side, the absence of coma, and the rare occurrence of continued delirium.

Some of the patients, as Macdougal and Mr Hercy, emitted a peculiar cadaverous smell during life, as observed by Mr Syme; and a fœtid and coloured sweat proved critical in Mr Whitelaw's case.

My notice was strongly attracted by the morbid state of the respiration in several of these cases; and, in fact, there are two very sufficient reasons for it; one of which almost always occurs, and both not unfrequently. When we consider that the inflammation with extreme tenderness most commonly affects the *pectoralis major* and *minor*, *serratus anticus*, and other muscles connected with the ribs, we may be satisfied that their motion must give uneasiness and pain; but when the intercostals themselves are involved in the disease, their action becomes more distressing. The pain in these cases resembles that in an exquisite degree of pleurodyne.

But in some cases the pain is not solely muscular, for the inflammation extending to the pleura, we have superadded the acute pain of the pleuritis. The latter variety was particularly remarkable in Mr Young's case, and the former in Ralston's.

In many of the other cases also, the respiration

was much affected, especially when the disease began in the arm.

Terminations.

Diffuse cellular inflammation has various terminations, modified by the exciting cause, the nature of the part affected, and the kind of inflammation.

In the very slight cases only, when it arises from an injury, does it terminate in resolution; and indeed, I do not remember having seen one where this took place, after any alarming symptom had occurred. Yet some of the numerous examples, in which, after venesection, the lips of the wound do not adhere by the first intention, and are surrounded by a diffuse colourless, or erythematic swelling, may be referred to this head. We may also consider, as examples of this kind, when a prick or scratch inflames and swells from dissection, without going further. If I am right in considering acute anasarca and phlegmatia dolens as depending upon inflammation of the cellular texture, they present us with frequent instances of its termination by resolution.

The next most favourable termination is abscess. In this case, the effusion of coagulable lymph seems to arrest the extension of the inflammation, by producing accretion and obliteration of the cells, and concentrating, as it were, the inflammatory action within a limited space, converting the diffuse and

spreading inflammation into the fixed and circumscribed; or, as Mr James would probably express it, there comes on, in the progress of the disease, the disposition to limit the inflammation by the effusion of coagulable lymph, which was at first deficient. This termination is very frequent after venesection, when abscesses are formed near the edge of the biceps, or in the fore-arm. The case of Harper is an example of this termination, and many others are to be found in authors; but the abscesses have been generally considered as suppurated lymphatics, whereas they appear to me to be seated in the cellular tissue. It is to this termination, that it has been the object of surgeons at all times to bring the disease, in their attempts to cure it.

Diffuse and extensive suppuration is a more frequent termination of the severe cases, and is observed both in instances which finally recover, and in those which prove fatal.

When the recovery after suppuration and sloughing is complete, the cellular membrane seems to be regenerated; and this is the more probable, as we see it every day formed in these preternatural adhesions which take place between serous surfaces, and in what are called new or false membranes.

In some cases, however, Nature seems to be inadequate to the reproduction, or rather the state of the neighbouring parts necessary for the reproduction has been permanently affected; and we find adhesion of the skin to the subjacent muscles, or deeper seated adhesions remaining, giving rise to

permanent contraction of the limbs, or rigidity of the muscles. In many instances these gradually disappear in a great degree, but in others they are more or less permanent. This seems especially to be the case when the diffuse inflammation of the cellular tissue is complicated with that of the skin.

In Mr O'Halloran's third case (Obs. 29.), three of the toes were lost by mortification, and the whole side became paralytic, as well as the leg and arm, and the use of the arm had not been recovered at the end of eighteen months. In his fourth case (Obs. 30.), both feet separated at the junction of the bones of the tarsus with the metatarsus; but this termination is very rare.

When the inflammation, in consequence of its spreading, affects the cellular tissue, which forms the attached surface of a serous membrane, the whole serous membrane becomes affected, and then the disease sometimes spreads rapidly and independently in this membrane, producing all the common phenomena of inflammation of a serous membrane. This was strikingly exemplified in Mr Young's case, where we found the inflammation spreading over the diaphragm and pleura costalis to the spine and pericardium, with sanguinolent effusion. Inflammation of the pleura, terminating in adhesion, and the formation of a false membrane, had also taken place in Mrs Craig's case; and in that of Mary Ross.

The transition of the disease to the mucous mem-

brane, has not been so distinctly observed, perhaps because they are less intimately connected with that portion of cellular substance which is the ordinary seat of the disease. Yet, I may mention, that during Mr Blyth's convalescence, an aphthous inflammation of the fauces was the most distressing circumstance, and required special treatment.

Even the bone does not escape the ravages of this very extensive disease. We found in Mrs Craig, the ends of several of the ribs carious and denuded of periosteum; but some doubt remained whether it was not the effect of a previous attack of syphilis, until an observation made in the examination of the body of No. 25. has satisfied me on this point; for when Dr Hunter divided the periosteum of the ribs, it immediately retracted and shewed that it had lost its adhesion to the bone by the effusion of a small quantity of serum beneath it, and a probe was easily introduced between the periosteum and bone. Now, had this young man survived as long as Mrs Craig, the ribs might have, in like manner, become carious.

In other cases, also, we have reason to conclude, that the periosteum was affected. The girl Robinson always complained of her excruciating and lasting pain as being seated in the bone; and it was with this belief that I directed incisions to be made through the periosteum, with the hope of giving vent to any confined fluid; and although the operation was not successful at the time, it may have contributed to her ultimate recovery.

Nothing morbid was observed in the state of the nervous system in any case.

The fatal termination of diffuse cellular inflammation takes place at very different periods, either in a very short time during the height of the disease, or after a considerable period has elapsed, in consequence of the sequelæ.

Dr Pett died in about 105 hours; Dr Dewar on the 7th day; Professor Dease and Mr Young on the 8th; Mr Rainer, and case in page 563, on the 9th; Mr Hercy and Mr Cumming on the 11th, and Mr Newby on the 12th day, after they had been engaged in dissection. Snell and Ralston both died on the 6th day after the symptoms commenced, in consequence of venesection. Of the other speedily fatal cases, Ellis and Murray died on the 6th day; Sutherland and Macdougal on the 7th or 8th; Macgregor, Reid, and No. 29. on the 8th; No. 25. on the 9th; and Ross on the 15th. Dogherty lived 30 days; Mrs Monro died hectic in about six weeks; and Mrs Craig survived three months.

Dissection.

Although, in the preceding part of this essay, I have been enabled, by the kindness of various friends, to insert in detail the reports of the only series of dissections of the bodies of individuals who have fallen victims to this affection, or

its sequelæ; yet I trust it will not be thought a work of supererogation, to attempt to describe them methodically, for the true pathology of the disease can only be derived from a correct knowledge of these appearances. As this disease is progressive, affecting one part first, and then others in succession, we find it after death existing in different parts, in all its stages. Accordingly, in the part most recently affected, which was often the space between the twelfth rib and the os ilium, we find the cellular substance merely œdematous, with increased vascularity; the serum is still fluid and limpid, or tinged with red, and readily flows from the divided tissue. In a more advanced stage, the effused matter is less fluid, often higher coloured, and has not yet acquired the opacity and whiteness of purulent matter. We next find the cellular membrane gorged with a white semi-fluid matter, which does not flow from the incision, but greatly augments its thickness, and separates the particles of fat to an unusual distance from each other. In the subsequent stage, it continues opaque, whitish, or reddish, or greenish, but becomes more fluid, so that now purulent matter flows from the incision. But the pus is still contained in the cells of the tissue; and it is only in the last stage of the disease, and after the tissue is entirely broken down, that we meet with collections of purulent fluid, with sloughy membrane; even then, however, the pus is not contained in a cyst or circumscribed cavity, but is gradually lost in cellular substance in the preceding

stage of the change, without any line of demarcation.

When fluid pus is formed, I have already spoken of it as if it were broken down cellular substance; but it is perhaps rather a secretion, which is in such abundance as to rupture the cells, and break down the cellular membrane, so that the portions thus disjoined from their necessary attachments become dead, or, in common language, sphacelous. In this way we may account for the masses, like skeins of thread, drawn out of Mr Blyth's side; and the sloughs of cellular membrane, described by Sir E. Home as resembling wet tow, and by Mr James as looking like large wads of wet shamoy leather.

Next to the cellular tissue, the *muscular substance* is that which is most constantly affected, although it might be doubted whether the interfibrous cellular texture alone was diseased, or whether the true muscular fibre itself was likewise inflamed. I am disposed to adopt the latter opinion, not only from the very intimate manner in which they are mixed, so that one cannot be conceived to be affected without implicating the other, but also, because, on dissection, we have always found the muscular substance much more tender and easily torn than is natural, and its colour altered. In the case of Mrs Craig in particular, we had the most direct evidence of the ultimate destruction of both layers of the intercostal muscles; and Sir E. Home, in a rat bit by a snake, found the muscles detached from

the ribs, and a small portion of the scapula. In some cases, the colour of the muscular fibre in the affected parts was much paler than usual, as in the body of No. 25., the last I have seen; and in others it was very much darker, as I recollect particularly in the first, that of Snell.

The cellular membrane is abundantly supplied with *vessels* of every description, and those which belong to the diseased part cannot remain perfectly sound. Indeed, the very formation of serous and purulent fluid, which is an essential character of the disease, is the result of a morbid action of the capillary vessels; and, accordingly, we find the usual indications of what is called increased action of the vessels. The number of visible red arteries is augmented, and the veins are enlarged and turgid with black blood. These appearances of the vascular system, I consider as primary. Mr John Hunter has described a secondary affection of the veins, which has hitherto escaped my notice. "I have found," says he, "in all violent inflammation of the cellular membrane, whether spontaneous or in consequence of an accident, as in compound fractures, or of surgical operations, as in the removal of an extremity, that the coats of the larger veins passing through the inflamed part, became also considerably inflamed; and that their inner surfaces take on the adhesive, suppurative, and ulcerative inflammations; for in such inflammations I have found in many places of the veins, adhesion, in others matter, and

in others ulceration * ;" (p. 18.) And he adds, that " it is so common a case, that I have hardly ever seen an instance of suppuration in any part furnished with large veins, where those appearances are not evident after death ;" (p. 19.)

The *lymphatic vessels* must also partake of the general disease, but their state has never been ascertained by dissection. The axillary glands have, however, been often observed enlarged, and imbedded in highly diseased cellular substance ; but although a swelled and tender axillary gland has been very frequently mentioned as one of the first symptoms observed, I have never found them so much diseased as at all to support the idea that their affection was the primary cause of the state of the surrounding parts. In Mr Blyth, swellings of the lymphatic glands of the groin were amongst the last symptoms observed, and did not appear until his convalescence was advanced. In Sutherland, No. 22, a small portion of pus was found in one of the axillary glands.

I must confess that no particular notice was in any of our dissections paid to the state of the *fasciæ*, but at least there was no such change in it any where as to attract our attention. An argument in favour of the insusceptibility of inflammation as a

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* Observations on the Inflammation of the Veins, by John Hunter, Esq. F. R. S. See Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge. 8vo. London, 1793.

property of tendon, may be derived from Mrs Craig's case, in which the tendinous *septa* between the ribs were left in places where the muscular substance and all other textures had disappeared.

The *skin* is frequently severely affected, but not essentially or primarily. This point of pathology is, I think, indisputably established by the preceding dissections.

Diagnosis.

The diffuse inflammation of the cellular tissue may be and has been confounded with many different diseases; and, indeed, this is not wonderful, for so extensively does the cellular tissue enter into the composition of all our organs, that it is rather difficult even to imagine a case perfectly free from complication. It will be necessary, however, to say a few words on the characters which may serve to distinguish it from those affections with which it has the greatest analogy; and on the varieties of the disease produced by their complication.

Phlegmon, when it takes place in the subcutaneous texture, is easily distinguished from diffuse inflammation, by the hardness and circumscribed extent of the tumor in the first stage of the disease,—by its becoming soft and pointing in the centre as it advances,—and by its discharging its whole contents at once, when it bursts. It is more difficult to ascertain the nature of phlegmon, when it is si-

tuated beneath a fascia, as the resistance of the membrane by which it is covered prevents it from pointing, and renders its form flat and diffuse. We may, however, conjecture the existence of deep-seated phlegmon when there is pulsating pain; when the character of the fever is rather inflammatory than typhoid, and when, after the general symptoms subside, the pain and tension remain in a limited space, and after a time a sudden effusion of pus takes place, with instantaneous relief. This seems to occur in many of the cases of sore arm after venesection, as in Harper, and Robinson.

Although phlegmon and diffuse inflammation, are opposed in one essential character, they may be complicated with each other in various ways. They may either exist together in neighbouring portions of the cellular tissue, or the one may be converted into the other. Every case of phlegmon is surrounded by œdema, more or less extensive; but in the immediate vicinity of the phlegmon, this generally disappears as the tumor advances to suppuration, although, at a certain distance from it, the diffuse inflammation may proceed to suppuration and gangrene.

It is not easy to conceive, that phlegmon can be converted into diffuse inflammation, because the nature of its first stage precludes the probability of that change, and it seems to be the nature of phlegmon to concentrate, as it were, upon itself the whole of the increased action; yet we certainly see cases in which an abscess is imbedded in diffuse inflam-

mation, as in the example of Snell, where the abscess previously existing, seemed rather to aggravate than mitigate the fatal disease caused by venesection.

On the other hand, it is not improbable that diffuse inflammation is frequently converted into phlegmon, by the effusion of coagulable lymph in a particular part, and the resolution of the surrounding inflammation by the property already ascribed to phlegmonous inflammation, of concentrating upon itself the morbid action. This conversion is always salutary, and takes place, I believe, whenever we see extensive swelling and general tension succeeded by phlegmon.

It is scarcely necessary to point out the diagnostic characters between diffuse cellular inflammation and *erysipelas*, or rather cutaneous inflammation, when they are pure and unmixed. Acute œdema or anasarca, when attended with pain and fever, and some cases at least of *phlegmatia dolens*, and similar affections, the cases No. 23. and 24. for instance, may be considered as uncomplicated cases of diffuse cellular inflammation; but more frequently, a blush of diffused redness, or red patches, indicate that the skin participates in the disease.

In the same manner, we have instances of inflammation of the skin, both limited and diffuse, with little or no affection of the subjacent cellular tissue. But even in circumscribed pustular and specific inflammations of the skin, we often find the subjacent cellular texture affected with œdema, or

even suppuration. Thus in small-pox, we have œdematous swelling of the whole surface, especially remarkable in the face, neck, hands, and feet, occasionally terminating in abscess. In a case of confluent variola lately under my care, subcutaneous abscesses endangered the life of the patient long after the small-pox had terminated. It is, however, in the diffused inflammations of the skin, that we most frequently find the cellular membrane affected. Scarlatina is but too often followed by anasarca, and in *Erysipelas phlegmonodes*, it is difficult to say whether the skin or cellular texture be the original seat of the disease. Dr Kirkland supposes that two distinct inflammations exist at the same time, erysipelas, affecting the skin, and phlegmon, the cellular membrane, each having its peculiar termination. I am disposed to think, that, in the severe cases, where the pain, fever, and swelling, precede the redness, the disease exists essentially in the cellular membrane, and that the redness and even vesication of the skin are only secondary effects from contiguity of texture. Mr James, on the contrary, seems to consider the cellular as always depending on the cutaneous inflammation, and that the spreading of inflammation in the cellular tissue, is the consequence of the skin being the true seat of the disease in all cases hitherto referred to erysipelas. His words are: "The disposition to spread is very remarkable, and this, probably, is connected with the circumstance, that the skin is primarily affected: for there is much stronger disposition to the adhe-

sive inflammation in the cellular membrane than in the skin. It also seems probable, that the inflammation spreading over the skin, *leads it* in the subjacent cellular membrane." P. 237.

But I hope I have sufficiently established, that inflammation may, and often does, spread in the cellular membrane, where no affection of the skin exists to induce it, and that, on the contrary, the cellular inflammation often leads, to use Mr James's apposite expression, the cutaneous.

Inflammation of the vein is recognised, when the vein can be felt lying like a cord under the integuments, red streaks appear in the course of the vein, and the tenderness on pressure is confined to the same line. There is also probably less pain on motion of the limb; and I should not expect the respiration to be so much affected, as the muscles, by which it is performed, are not involved in the disease; and, for the same reason, there should be no fulness of the pectoral, cervical and lateral muscles, and less appearance of erysipelas.

It must, however, be admitted that the diagnosis is often difficult. Thus, the general tumefaction of Mr A.'s arm, and especially its origin from a cause which had hitherto not been known to produce inflamed vein, deceived me, and it was considered to have been an instance of diffuse inflammation, until the examination of the body shewed that the disease was in the vein; but although the vein could not be felt like a cord, still the pain, on pressure, was confined to the situation of the affected vein,

and two red streaks, in the same situation, appeared the day before death.

From the only case of inflamed vein in man, of which Mr Hunter has recorded the particular appearances, we can derive no assistance in establishing a diagnosis *.

In the history of Mr Broughton's case †, I can discover no diagnostic symptom, and I confess, that I should have considered it as an example of diffuse inflammation. Indeed it probably was an instance in which both systems were affected, the veinous chiefly. "There was so much inflammation, adhesion, and induration, in the upper part of the arm, that it was extremely difficult to trace the vessels, and detach them from their connexions." P. 215.

In Mr Travers's first case, p. 211., the only diagnostic signs are the pain extending up the arm in the course of the vein, and the apparent enlargement of the vein.

Mr Oldknow's case ‡ of death from inflamed vena saphena, had pain on the inner side of the knee, in the course of the vein, but there was no external inflammation at that part. "The inflammation went gradually up the vein, which was evident from its peculiar cord-like feel, from giving pain on pressure, until it reached the groin, the inferior part getting well as the superior became bad, so that the

* Med. Comment. vol. iii. p. 434.

† Hodgson, p. 512.; Travers, p. 214.

‡ Edin. Med. and Surg. Journ. vol. v. p. 175. Travers, p. 218.

wound was nearly healed before death, the ligatures having separated about the fourteenth day. There was no tumefaction of the cellular membrane, no enlargement of the glands of the groin, no superficial inflammation on the thigh." P. 176.

In Mr Hodgson's first case, the characters are more distinctive, "no pain of limb; he did not complain when it was pressed, nor was it tense or red," p. 556.—"The redness, pain, and tenderness of the thigh, had increased and extended up the limb, in the course of the saphena," p. 557.

In his second case, the pain in the course of the vena saphena was excruciating, p. 560.

Mr Travers's first case, p. 216., of ligature of the saphena was probably complicated with cellular inflammation; and in the second case, (p. 217.), I should suspect that the latter disease was the chief cause of death; but neither case was dissected.

No. 7. of the series of cases in the first part of this paper is a very well marked example of complication veinous with cellular inflammation.

The following case, observed by M. Raikem, and inserted in the valuable Notes added by Breschet to his Translation of Mr Hodgson's work, is another variety of this complication, and may serve to illustrate the singular case already quoted from Hildanus.

A lad of 14 or 15, who had been cured of a cutaneous eruption by mercurial inunction, was soon after seized with acute and continued pains in the right lower limb, which became affected with serous

infiltration, and fever supervened. In the middle of March 1809 he was admitted into the Hospital, with all the symptoms of Pinel's continued adynatic fever (typhus); the right thigh and groin presented an œdematous swelling, exceedingly painful, although the surface of these parts had their natural colour and temperature. The left leg was a little infiltrated. No remedy succeeded in relieving his intolerable sufferings. A circumscribed and purulent deposition (depôt) took place in the subcutaneous cellular membrane of the anterior and upper part of the chest; and he died on the 4th April. On dissection, the *vena cava ascendens*, and both iliacs, were diseased: "The place of the right iliac was supplied by a kind of ligamentous canal, with thick sides, and a very contracted calibre, which terminated and lost itself in a vast collection of purulent matter in the cellular texture, surrounding the hypogastric and iliac vessels, as well as the external and right surface of the bladder. Notwithstanding the most minute examination, not the smallest vestige of the crural vein could be discovered; the course of that vessel was occupied by a circumscribed streak (*trainée*) of pus, and the suppuration extended to the calf of the leg. The veins of the leg were contracted, and filled by solidified fibrine; and there was no disease in any other part of the veinous system. The subcutaneous cellular substance of the legs contained serosity." Tom. ii. p. 443.

The diagnosis between diffusive cellular inflammation and *inflamed lymphatics* is more difficult.

Unless we admit superficial red streaks, not connected with veins, running along an extremity from the place, where the exciting cause is supposed to have been applied, and swelling of the lymphatic glands, to which they lead, as being conclusive evidence of inflammation of the absorbents, and the absence of these characters as a proof that the lymphatics are not affected, I can point out no other diagnostic signs by which we may distinguish, during life, inflammation of the lymphatics from that of the cellular tissue.

Granting that a morbid poison, applied to a broken surface, may be taken up by the absorbents of the parts, which is strongly combated by Magendie, and admitting that the lymphatic vessels and glands may be in some instances first affected, I am perfectly satisfied, that the surrounding cellular substance soon becomes the real seat of the disease in all cases where there is great tumefaction, distention and pain of the limb, and most certainly, where these symptoms are followed by extensive suppuration; and that in many such cases there is no evidence whatever of the absorbent system being particularly affected, although this be the present opinion of many of the best pathologists both in Britain and in France, since the publication of Mr Abernethy's valuable Essay. It will be expected that I should state distinctly the grounds on which I venture to differ in opinion from so celebrated a pathologist.

In Mr Abernethy's first case of inflammation of

nts, (p. 137.), two swellings appeared af-
ion, on a lady's arm, one on the middle of
er the large vessels, and the other on the
idway between the elbow and the wrist.
s for considering these as inflamed lym-
, that " they so exactly resembled those
ch form round irritated lymphatics, that
uld be entertained of their nature ;" " no
of the veinous tube could be distinguish-
Mr Abernethy could plainly feel two in-
orbents leading to the superior tumor,
the lower. The tumors terminated in
In Mr Abernethy's second case (p. 139.),
Mr Pott, after bleeding, the orifice fes-
ain and swelling extended to the arm-
he glands were enlarged ; inflammation
ed the fore-arm, and, on admission to St
w's, the arm was greatly swollen ; two
ses had formed, one near the inner edge
os muscle, about the middle of the arm,
her on the inside of the fore-arm. Mr
d both abscesses, and after they were
ed, the parts surrounding them still re-
ckened, and also all the integuments on
f the arm, and in these thickened inte-
hree cord-like substances, evidently, he
ents were to be distinguished, extending
unctured part to the superior abscess ;
above this, two were continued even to
Two other indurated vessels also ex-
n the punctured part to the inferior ab-

scess, " their appearance, course, and every other circumstance, clearly shewed them to be indurated absorbents.

In the third case (p. 141.), the lancet-wound festered. Pain extended to the axilla, and one of the glands there was swollen. The integuments about the middle of the arm were elevated by a tumor, which was painful when pressed, and whose base was not circumscribed, but was gradually lost in the surrounding parts.

In abridging Mr Abernethy's cases, I have meant to retain every fact in favour of his opinion, but to me the evidence is quite unsatisfactory. The general and diffuse tumors observed cannot be accounted for on the supposition of the inflammation of a few, nor even of many of the lymphatics; the glands, or rather the cellular substance around the glands, will swell in every case of inflammation, although it be certain that the lymphatic system is not the seat of the disease; and the evidence of cord-like substances felt during life through the integuments, is too vague to be admitted as conclusive against the general resemblance of these cases to others, in which the nature of the disease was ascertained by dissection.

It is but justice to Mr Abernethy to state, that, when he wrote, he does not appear to have met with an instance of death as a consequence of venesection, and therefore had no opportunity of observing the morbid state of the various textures; for there cannot be a doubt, that if he had witnessed the dis-

section of such a case as those of Snell or Ralston, his views would have been different.

Nor is the evidence upon which Mr James admits inflammation of the absorbents more satisfactory. In describing *Erysipelas phlegmonodes*, he says, "It most frequently begins about sores which are nearly healed, or have been recently irritated," (p. 254.) "At first the sore looks red, irritable and dry; a blush is seen around it; streaks move upwards and downwards in the course of the absorbents," (p. 256.) "Abscesses also often form all the way up the thigh, and down the leg and foot, in the course of the inflamed absorbents. The lymphatic glands, too, inflame and suppurate, and seem to check the spreading of the inflammation. In them, its character approaches more to that of phlegmon, and the pus is of a better description than in the leg; (p. 257.) Upon these circumstances, Mr James considers the inflammation of the absorbents to be so prominent a feature in these cases, as to leave it a matter of doubt whether this species of inflammation should be classed with inflammation of the absorbents or with erysipelas.

Magendie discusses the absorption of morbid poisons by the absorbents, and their consequent inflammation, in a very unsatisfactory manner. He seems to deny the absorption, but to admit the inflammation, and concludes by saying, that it is common to find the veins inflamed after puncture, and even at the same time with the lymphatics. He mentions as a striking instance of this, the case of

Professor Lecler, who died " in consequence of the absorption of putrid miasms, which took place by a slight abrasion on one of the fingers of his right hand. The lymphatics and glands of the axilla were inflamed. The glands had a brownish colour, evidently morbid; but the internal membrane of the veins of the right arm presented unequivocal traces of inflammation, and the *lymphatic glands of the whole body* exhibited the same change as those of the right axilla *;" (p. 190. t. ii.) But this last fact renders it improbable that the state of the axillary glands arose from the absorption of putrid matter from the abrasion of the finger.

Mr Abernethy, and those who have adopted his opinions, have not altogether overlooked the influence of the cellular membrane in the diseases ascribed by them to inflammation of the lymphatics, although they have, in my opinion, much underrated its importance. Thus, Mr Abernethy admits, that " when the absorbents become inflamed, they quickly communicate this disease to the cellular membrane by which they are surrounded;" (p. 144.) Mr James also says, " the inflammation runs along these vessels, and being communicated to the surrounding cellular membrane, the skin inflames over them, and the progress is marked by streaks running along the limb with much rapidity, both upwards and downwards;" (p. 198.) In this place, it is evident that Mr James understands

* Precis Elementaire de Physiologie. Par F. Magendie. 2 tomes 8vo. Paris, 1817.

very limited portion of the cellular tissue lying immediately between the inflamed absorbent and the skin; but he has also included under the title of "inflamed absorbents," the inflammation which is produced by the absorption of the matter of dead bodies. "There is another variety which certainly differs in some respects, and in which the profession ought to feel a particular interest, but which has not as yet received any distinct notice;" (p. 199.) "The difference," he adds, "between this and common inflammation of the absorbents, arises from the peculiar effects of the poison in lowering the nervous energy, both general and local." (P. 200.)

Mr James has given the title of "*Erysipelas phlegmonodes biliosum*, combined with inflamed absorbents," to such cases as those described by Mr C. Hutchinson, and considers the peculiar character of this disease to depend much upon the inflamed state of the absorbents; but the evidence of this is not very conclusive; while he admits that the subcutaneous cellular membrane suppurates and sloughs extensively, looking like large wads of wet shamoy leather when separated. (P. 256.)

Formerly, many cases were considered as examples of *inflammation of the fascia;* but their number has been greatly limited, first by Mr Hunter, and then by Mr Abernethy; and I am disposed to impute almost all that are not decided cases of inflamed vein or lymphatics, to inflamed cellular tissue; that is, I believe that the disease, in no instance, commences in the dense tendinous mem-

brane, but that, when it is affected, it always spreads by contiguity from the cellular tissue which connects it with the neighbouring organs. Mr Abernethy has, however, retained a few cases as seated in the fascia.

The first of these (p. 152.) occurred to Mr Pott, by whom the distress was ascribed to punctured nerve. It was relieved by an incision through the fascia, which gave vent to much matter collected beneath it. In the other case seen by Mr Abernethy (p. 154.), the disease terminated by resolution. The histories, however, do not seem to furnish any proof that the fascia in either case was inflamed, but rather that there was diffuse inflammation beneath the fascia.

Neither do I consider as more conclusive Mr Colby's case *, to which Mr Abernethy refers as one of inflamed fascia, but which was supposed by the author to arise from a puncture of the tendon. The affection was very slight, consisting of stiffness of the whole fore-arm, pain, and inability to move it, which disappeared in about three weeks, on the supervention of erysipelas of the face, neck, and arm.

Mr Abernethy also quotes, as an instance of inflamed fascia from puncture in venesection, the first case described by Mr Watson in the same volume, p. 251. It is a very interesting, and in many respects anomalous, case. The chief symptom was contraction of the fore-arm, which was three several times relieved by incisions through part of the fascia.

* Medical Communications, vol. ii. p. 18.

Some time after the last operation, it again drew up suddenly in the presence of Dr William Hunter and Mr Watson. She complained of great uneasiness in the body of the biceps muscle, as if matter were forming there. The breast also became full, but subsided on the application of a poultice, as it had done on a former occasion, on being punctured under the erroneous supposition that matter was formed there. The throbbing continued, and some sort of thick stuff came from the orifice where she had been blooded. Before having recourse to amputation, Mr Watson determined to try another incision made with greater freedom. He accordingly began it in the middle of the biceps, carrying it deep into the body of the muscle, in the direction of its fibres, and continued it into the tendon to a little below where it sends off the fascia of the fore-arm. This time the operation was permanently successful. The woman exclaimed, "Now you have indeed cut the cord that bound up my limb." But it is of importance to observe, that "there was a large discharge of lymph from an orifice like a pin-hole at the lower edge of the wound, which, upon bending and extending the arm, flowed more freely. A solution of blue vitriol stopped the discharge in about three days. Mr Watson has no doubt of its being supplied by a divided lymphatic; but connecting it with the sudden relief obtained at the same time, it appears to me that it may have been an effusion beneath the fascia, which was then let out. It is, however, proper to mention, that Mr Watson re-

lieved, in the same manner, another case (p. 266.) of contraction, arising from the same cause, in which no discharge took place. Still it is difficult to reconcile the speedy relief obtained, with the supposition that the affection was owing to inflammation of the fascia. I am rather disposed to think, though very uncertain, that it arose from the removal of pressure by the fascia upon a deeper-seated diseased part.

" It may always be concluded," says Mr Swan *, " that *a nerve* has been injured, if upon the infliction of the wound very acute pain is complained of, and especially if it is in the situation of a nerve; but what will make it still more probable, will be the extension of the pain in the course of the nerve, and convulsions, or other symptoms of great nervous irritation, accompanying it, which it is frequently difficult, and sometimes impossible, to appease by any remedies." (P. 105.)

The diagnosis between such an affection and pure cellular inflammation is evident; but it frequently happens that they are complicated with each other, and then it becomes of importance, as influencing the practice, to ascertain which of them is to be considered as primary, and which as secondary.

Mr Abernethy, from physiological grounds, was inclined to doubt that the partial division of a nerve could be the cause of the symptoms ascribed

* A Dissertation on the Treatment of Morbid Local Affections of Nerves, to which the Jacksonian Prize was adjudged. 8vo. London, 1820.

to it, and expressed his opinion that "the disease consists in the inflammation of the injured nerve in common with the other wounded parts," and that it may happen with or without a total division of the nervous cord. (P. 162.)

Mr Swan, although he shews satisfactorily that bad symptoms may, and occasionally do, arise from partial division of a nerve, independent of inflammation, or any thing else that could irritate the nerve (p. 109.); yet admits that by far the greatest number of injured nerves in venesection, are made troublesome by the patient using the arm too soon, and bringing on inflammation. (P. 115.)

On the subject of the complication of nervous with cellular inflammation, my experience is exceedingly limited. During the slight operation which was followed in case No. 24. by inflammation, the complaints made by the patient suggested immediately the idea of a nerve being much irritated; and in many of the cases where abscesses formed, paralysis or numbness of the extremity was observed, and in some cases, as in Mr Burton's, singular nervous sensation was excited by touching certain parts of the surface. But these I consider as secondary effects.

Mr Sherwen * has detailed a case in which there seems to have been a complication of punctured nerve, with diffuse inflammation.

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* Edinburgh Medical Commentaries, vol. iv. p. 210. 8vo. Edin. 1776.

As additional examples of complication of cellular inflammation with nervous affection, I might quote the celebrated case of Charles IX. so quaintly related by Paré, in which extreme pain was felt at the moment of the puncture, soon extending over the whole arm, with very great tumefaction and contraction of the arm, lasting more than three months; also Mr Sherwen's third case, (p. 223.) In Mr O'Halloran's cases, the pain felt immediately from the puncture of the lancet, indicates rather an injury done to a nerve than to a tendon; and it is not impossible, that also in Mr Watson's cases an injured nerve was the cause of many of the most distressing symptoms.

It is sometimes exceedingly difficult, especially when the cause has not been ascertained, and the body is not examined after death, to distinguish the disease, from *typhus fever*, with intense pain in one of the shoulder-joints, which occasionally occurs in rheumatic typhus fever. When Dr Colles first saw Mr Dease, he supposed him labouring under high symptoms of the prevailing fever; and Mrs Craig was treated by myself as a case of continued fever, with unusual symptoms. As an illustration of the diagnosis in doubtful cases, I may state my reasons for thinking that the case, of which an outline has been given in page 564, was really an instance of this disease. Independently of exposure to a sufficient cause, these were the suddenness of the attack, and the rapid progress of the disease,—the

peculiar nature of the local symptoms, affecting first the shoulder and then the loin,—the absence of typhomania, coma or delirium, except of the most transient kind,—the patient remaining conscious of his state, and interfering with its treatment,—the taking leave of his friends, and the death occurring before the period when typhus commonly proves fatal.

Prognosis.

The Prognosis in diffuse cellular inflammation is regulated by the cause, extent, and severity of the disease. It would appear that fatal cases occasionally occur from many of the causes, but fortunately most of them more frequently give rise to slight cases. Still, however, the occurrence of the disease is more alarming after some causes than after others. Of the former description are the bite of a venomous snake of sufficient energy, dissection, ligature of a vein, and venesection; and it seems to be least dangerous in the form of *phlegmatia dolens*. The danger is much less when the fever has the inflammatory than when it has the typhoid type. The presence of delirium or stupor, the accession of fresh rigors, difficulty of respiration, great depression of mind, and sudden debility, are all of bad omen. There is, in general, less danger when the disease commences in the part to which the cause has been applied, and extends progressively from it,

than when it suddenly attacks a distant part, nearer to the trunk of the body, as the axilla. Great tumefaction in the region of the pectoral muscles, and on the neck, is a bad sign, but the extension of the inflammation down the sides is rather favourable. I would also consider the supervention of erysipelas, especially when accompanied by a mitigation of the general symptoms, as of good portent; and the formation of phlegmon or subcutaneous suppuration, generally indicates that the progress of the disease is arrested, and that its termination will be favourable, if properly treated.

Prophylaxis.

The only circumstance in which we are aware of being about to expose ourselves to a cause capable of exciting the disease, is when we are to be engaged in morbid dissection. Some persons are much more susceptible to the impression of dead animal matter than others, so that they cannot open a body without having their skin and system somewhat affected. Such persons may be well excused for putting on gloves when they engage in this laudable, and to them dangerous, pursuit, as great dexterity in morbid dissection is seldom required; and it is but a proper precaution in every person to anoint their hands thoroughly with camphorated oil, or simple axunge, before handling the viscera. It might appear unnecessary to caution any person ha-

ving an abrasion on any part of the hand, against exposing it to the contact of dead animal matter, without defending it completely by adhesive plaster, if it were not but too certain that this simple precaution is often neglected.

Local Treatment.

When any accident has happened, leading us to suspect that it may be followed by such dreadful consequences, our first object is to prevent the cause from acting upon the system. The two most alarming circumstances are the bite of a poisonous snake, or a prick in morbid dissection. We may attempt to remove the poison applied before it has time to act, to destroy and render it effete, or to enable the system to resist its impression. For attaining the first object, nothing is more effectual than instantly sucking the wound with the utmost force, by which means the poison is often removed, and no fear need be entertained of any bad effects upon the mouth which receives it, for, even if it were not immediately spit out, yet it requires a much larger dose of poisons of every kind to act upon an entire mucous membrane, than when applied to the abraded skin or wounded cellular substance. Accordingly, it is the constant practice, when a prick is received in dissection, to suck the wound; and I have little doubt, that by this simple expedient bad consequences are frequently averted.

Celsus recommends the use of the cupping-glass as a mode of suction. To this, when practicable, I see no objection; but I am uncertain whether the previous scarification he recommends be advisable, as we may thus effectually innoculate the system with a poison, which might have otherwise been inactive, by being in contact only with a non-absorbing substance.

"Igitur in primis super vulnus id membrum deligandum est; non tamen nimium vehementer ne torpeat; dein venenum extrahendum est. Id cucurbitula optime facit. Neque alienum est, ante scalpello circa vulnus incidere, quo plus vitiati jam sanguinis extrahatur *."

The treatment which is next in point of simplicity is careful ablution with water; but I cannot say whether cold or hot be preferable. Hot water is supposed to be most active as a detergent, and cold water to counteract absorption most. Perhaps first cold, and then hot, should be used. The destruction of the poison, if any be left, is often attempted by chemical caustics, especially by nitrate of silver, with which every person engaged in dissection should be provided. Others prefer strong nitrous or other mineral acid, as being more effectual, and others caustic ammonia or potash. Whichever of these most speedily and effectually decomposes and destroys the nature of the poison is to be

* Lib. v. cap. 27. De Vulner. quæ per morsus inferuntur.—Celsus.

preferred; but this is unknown. Nitrate of silver acts more slowly, and is less easily applied in sufficient quantity than the others. Acids instantly coagulate animal fluids, and render them more adhesive, while alkalies dissolve them, and render them easily removed by ablution. On this principle, too, soap is employed. But of all the means of destroying the properties of the poison, none is equal to the actual cautery or excision, when practicable. But these violent means will rarely be resorted to, unless where, as in the bite of poisonous snakes, there is otherwise little chance of a cure.—(Ranken.)

For enabling the system to repel the poison, when it is not or cannot be removed, or to counteract its being absorbed, the application of powerful stimuli to the part has been recommended. Thus, Dr Colles directs that the anatomist should plunge his finger into a cupful of *oleum terebinthinæ* the moment it is wounded, in the hope that the irritation may counteract the power of infection, or alter the mode of inflammation in the wound; (p. 222.) This practice was also recommended by Paré, Heister and Wiseman, and is confidently applied to a puncture from a pin or needle by country people, to prevent festering. (Sherwen, p. 227.)

The application of ligatures to the limb above the injury, has been often recommended and practised, either to give time for the employment of other means, as by Celsus, or to prevent the absorption of the poison, according to popular opinion, or

to set a limit to the extension of the disease excited, by causing adhesion of the vein, according to Mr John Hunter, or by setting bounds to the swelling, according to Sir E. Home; but I apprehend that compression can rarely be effectually employed, except with the two first intentions. The judicious application of a ligature by Mr Burton, in his own case, seems to have set a limit to the extension of the disease towards the trunk, and was probably the means of saving his life. Paré bandaged the whole arm, in Charles IX.'s case. "It seems," he says, "to corroborate and restrain the muscles, express and return towards the upper parts the humor already descended, and hinder a fresh flux of more."

When the cause, whether it be a material poison, or only irritation, cannot be prevented from acting upon the system, its effects are of two kinds, local and constitutional, and remedies are in like manner directed against each.

With the view of reducing the local inflammation, I have often found the continued application of a considerable degree of cold eminently beneficial, so long as no phlegmon had been formed, for after that period cold seemed hurtful, and fomentations and warmth were beneficial. But I believe, that in the choice between these opposite measures, we may safely trust to the sensation of the patients, and employ cold or warmth as most agreeable to them. This was strikingly exemplified in the case of Harper. In the case related by Mr Sherwen, warmth perseveringly employed was throughout injurious,

as has been candidly remarked by the author himself, (p. 226.)

In the first stages, the detraction of blood from the part by the free application of leeches, or numerous scarifications, is never to be neglected. The former I have used in many cases, and I have never seen the dreaded mortification of their bites. Indeed, were they to excite inflammation of the skin, I should be inclined to look upon it as a favourable circumstance, by diverting the inflammatory action from the internal and more important tissues. It is upon this same principle, that the action of blisters is frequently of service in the early stages, although afterwards their action may be explained by the large discharge of serum to which they give rise; and it is upon this principle, that the application of the actual cautery may prove serviceable. After I had learned the untractable nature of this disease in the severe cases, I conceived a notion, that we might avert its danger, if we could excite phlegmonic inflammation in the part, hoping that by this means a limit might be put to its spreading; and I even ventured to propose the employment of the actual cautery with this view. But I find that I have been anticipated by M. Morand, who actually carried the idea into practice, and apparently with good effect, (p. 273.)

In many of the cases leeches were very freely applied to the seat of the pain, swelling, and inflammation, and, although in some instances they were supposed to do harm, I am rather disposed to think

that the subsequent increase of inflammation was the natural progress of the disease, which they were unable to check. Of this at least I am certain, that in none of the cases in which they were applied under my observation, did they shew the least tendency to fester or become gangrenous. I paid particular attention to the state of the leech-bites in the body of Mr Young, to whose side they were applied before the skin became affected, and found them perfectly healthy, and in general healed, although some of them penetrated through the skin into the cellular membrane. I may remark, that in this disease leech-bites commonly bleed very profusely.

In those cases, where blisters have been applied, they have in general produced a very copious discharge, as in Mrs Monro, and have healed very readily, without shewing any disposition to become gangrenous. In M. Morand's second case they were evidently of great advantage.

As soon as any fluid seems to be effused into the cellular tissue, which in the severe cases is very soon, I am convinced that the best practice is to give it immediate vent by free incisions. When, deceived by the sensation of deep-seated fluctuation, we content ourselves with plunging in a lancet into the part, we are disappointed by no discharge taking place; still the puncture sometimes proves of essential service, by facilitating the discharge, as soon as the effused matter becomes sufficiently fluid to flow out. Thus, the deep puncture made in Mr

Blyth's side appears to have been the eventual means of saving his life.

But a much bolder practice is preferable, and one which was long ago recommended by Mr O'Halloran, on the sure ground of experience. He gives an account of the treatment of three cases, in all of which the disease followed venesection. In the first case the arm was scarified lightly in several places, but the patient died on the 9th day. The second case was seen by Mr O'Halloran on the 5th day after, and again on the 8th. He now resolved to make "many profound incisions the length of the arm, in hopes that the activity of the stupes and poultices would sooner pervade these parts." Wherever he made his incisions he found the adipose texture swelled and spongy, so much, that at the depth of an inch he did not cut through it, shewing that little danger accompanies profound incisions in such a state. Water, clear as crystal, started from the wounds, and was increased by pressing on the contiguous parts. His first incisions were made near the bend of the arm, and round it, in nearly parallel lines, each above an inch long, and about half an inch distance. In about two hours he made a similar range of profound incisions, about two inches higher up the arm, and next day a third and fourth set; the swelling of the arm returning between each. At night the arm was visibly lessened, and on renewing one of the incisions over the biceps muscle, about a table-spoonful of pus, of a pale whiteness, spouted out of the orifice, and, for the first

time, the patient sensibly felt the heat of the stupes, and the activity of the dressings, which, he observed, produced a tingling heat all over the arm. Next day more profound incisions were made, and on opening the sores at night, those of the arm which before seemed so deep and extended, now appeared small and superficial, on account of the subsiding of the swelling of the skin and *corpus adiposum*. After this he speedily recovered his health, and the use of his arm and fore-arm. The dressings applied were of the most stimulating nature, and he got a liberal allowance of wine and generous diet.

A third case, where inflammation with sore orifice occurred after bleeding in the foot, was treated in the same way, and with equal success.

The deep scarifications, so successfully employed by Dr A. C. Hutchinson for the cure of *Erysipelas phlegmonodes*, is a further illustration of the great advantages of this practice in diseases of this nature.

Sir E. Home recommends as the only rational treatment to prevent the secondary mischief from the bite of a poisonous snake, making ligatures above the tumefied part, to compress the cellular membrane, and set bounds to the swelling, and scarifying freely the parts already swollen, that the effused serum may escape, and the matter be discharged as soon as it is formed ; p. 88.

General Treatment.

I wish that I could speak of the general treatment proper in the dangerous varieties of this disease, with as much confidence as I have done of its local treatment; for, although in some cases life seems to have been preserved or prolonged by medical assistance, and although in others it may have been lost, from the means employed having been inefficient or improper, yet cases occasionally occur which baffle the utmost efforts of our skill.

A very brief historical sketch of the treatment employed at different times will suffice.

Celsus prescribes early stimulation. "Necessarium est exsorbere portionem meri veni cum pipere, vel quidlibet aliud, quo calor movendus est, ne humorem intus coire patitur, nam maxima pars venenorum frigore interimit." L. v. cap. xxvii.

Dionis recommends a mixed practice. He says, "That the swelling, after it is begun, will grow to an extraordinary bulk, if we do not endeavour to divert the torrent by plentifully bleeding the other arm, by cordials internally administered, and the application of proper remedies to stop the course to these humours, to resolve them, and to defend the arm from those in which they are soaked." P. 379.

Mr O'Halloran, besides local treatment, took from his first patient some blood, and ordered an active warm purge, and afterwards gave the bark in substance, and strong broths, to assist nature to re-

ject the load of oppression, but he died. His second patient was bled, got a warm purge, then strong port-whey, claret, and strong seasoned broth; his recovery was complete. The third patient had an irritable stomach, and got first a light pleasant lemonade, and at night two grains of mercury, which purged smartly. Next day, a decoction of bark, with elixir of vitriol, was given, which the stomach constantly rejected. She survived, but was paralytic. In conclusion, Mr O'Halloran states, that, although he made use of bloodletting in his first two cases, yet, upon mature consideration, he condemns it (purely on theoretical grounds), "as rather weakening nature than assisting us," except upon some very urgent or unforeseen occasion. But he recommends warm active purges, one or two, according to the indications. "The spirits, he says, are likewise to be supported with strong and seasoned broths, wine, with a bit of toast, jellies," &c. P. 104.

Mr Abernethy scarcely notices the general treatment to be followed in the ill consequences of venesection. In inflammation of the absorbents, he recommends the taking of some gently purgative medicine; and in that of the fascia, he merely says, that, doubtless those general means which are reductive of inflammation should be employed.

Mr Travers is not more particular in regard to the general treatment in cases of inflamed vein; but his patients seem generally to have been bled and purged.

Dr Colles found large doses of opium to fail in procuring the slightest mitigation of pain in Mr Hutchinson's case, and the fever was not in the smallest degree controlled by the usual remedies. In a more advanced stage, the fever continued unabated, and his strength seemed nearly exhausted, and was supported only by large quantities of wine. Professor Dease was bled, got purgatives and glysters, laudanum, and carbonate of ammonia, wine-negus, and cordials, but in vain.

The man bit by the rattle-snake, in London, got *Aqua ammoniæ puræ*, and *Spiritus ætheris sulphurici*, with *Mistura camphorata*, but they failed in preventing the fits of faintness, and in exciting the pulse, which was feeble, and afterwards became very frequent. He then got opium till it seemed to produce drowsiness, and afterwards brandy, which was exchanged for wine on his pulse becoming slower, full, and strong. At the same time, he used the most nutritious diet that his stomach could bear, jelly, veal, coffee, and porter. The stimulant treatment was continued until the death of the patient, which seemed to take place not from the primary, but from consequent, mortification.

It would be an omission, in treating of this subject, to pass over the acute observations of Dr Ranken *, on the effects of ammonia against the bite of the Cobra di Capello, from which he concludes, "that the spirit of ammonia, given to a dog five

* Edin. Med. and Surg. Journ. vol. xviii. p. 235.

minutes after he has been bitten by the hooded snake on the belly, or any part destitute of large bloodvessels, in doses of one drachm, repeated every ten minutes, may save the animal's life." "But when not exhibited in less than thirteen minutes after the bite, it is probable that neither spirit of turpentine, spirit of ammonia, nor spirit of wine conjoined with ammonia, will cure a dog, or even much retard the progress of dissolution. Dr Ranken was not ignorant of the very different conclusions drawn by Fontana, from the numerous experiments he made on the poison of the viper; but adopting, in regard to them, the doctrine advanced by Mr Williams†, that the venom produces at first violent excitement, soon followed by extreme depression, and that the cure must consist in the counteraction of some powerful stimulant, he attempts to account for the failure of the Italian philosopher, from his exhibiting the antidote as soon as the animals were bitten, by which a strong stimulus acting simultaneously, instead of counteracting the poison, was made to assist it in exhausting the powers of life.

Dr Ranken did not find any reason to confide in the spirit of turpentine, but his experience is decidedly in favour of spirit of wine. A sepoy who had received two doses of alkali, of two drachms each, took a wine glassful of brandy every ten minutes, and recovered, after having lain insensible a considerable time. Another drank half a glass al-

* Asiatic Researches, vol. ii.

ernately with the ammonia, and was likewise cured; nd a third got a glass of brandy every ten mi- utes, to the extent of two-thirds of a bottle, and vas soon well, without being at all intoxicated.

Similar effects are observed from the use of this ighly diffusible stimulus in other affections of the ame kind. My own brother, when bathing in the ea off Jaggernauth, was stung by some venomous narine animal. His whole body instantly swelled normously, and he became delirious. No medical ssistance being at hand, the fishermen undertook to ure the affection, which was familiar to them, and hey effected it by giving large quantities of brandy.

Almost all the specifics which have been at dif- erent times extolled for the cure of the bite of oisonous serpents, on the authority of the natives f those countries in which they exist, are stimulant r tonic vegetables, of which a long catalogue might e given. These have all failed when they have een tried by scientific practitioners; but are we, n that account, to consider them as utterly ineffi- acious? There is commonly some ground for po- ular opinion, when it is widely diffused; and not nfrequently, after a length of time, modes of prac- ice in use among the vulgar, which were rejected s contrary to the prevailing doctrines, have after- ards been found to be conformable to the prin- iples of a more enlightened age.

The cases which have fallen under my own ob- ervation, have been treated almost entirely anti-

phlogistically, and in the greater number the lancet has been repeatedly employed. Both from the relief, which has often been immediately given, as well as from the indisputably inflammatory nature of the disease, there remains no doubt in my mind as to its propriety in most cases; and although it has failed in many, this must be ascribed to the intensity of the disease, which no depletion, consistent with the continuance of life, is able to overcome. Thus Mr Cumming was bled no less than four times, besides the repeated application of leeches, but in vain; and the case recorded by Dr Le Herissé shews, that very copious abstraction of blood is unable to prevent or mitigate the disease in every instance, for the patient was bled on account of epilepsy, on the 1st November, twice from the arm; on the 8th from the foot; on the 10th and 13th from the jugular; and on the 16th from the arm, and this puncture was the cause of the disease: to cure the disease, on the 18th the temporal artery was opened, and blood freely abstracted, but he died on the 23d.

The blood drawn has in general been remarkably sizy, some describing it as covered with a yellow crust, and others comparing it to calves-foot jelly. This appearance is owing to a very complete separation of the fibrine and red globules, while at the same time the fibrine does not contract and express the serum, as it does in what we call cupped blood.

Thus we see, that, in the treatment of this disease, very opposite means have been employed, and both appear to have been occasionally successful,

and both have failed. But their salutary effects depend upon different principles. In general, by the antiphlogistic treatment, we are enabled so to lessen the existing inflammatory state, that the system is capable of recruiting and performing the office of restoration to health; but, on the other hand, by the free exhibition of diffusible stimuli, we seem, in some instances, to impart to the system such a degree of preternatural energy, as to resist and extinguish the diseased action, after which health is again restored by gradually abstracting the cause of the artificial and salutary excitement. In some cases, however, we are perplexed by opposite indications, when an extreme degree of debility requiring cordials, exists along with intense inflammation, which can be conquered only by further depletion. In these cases, we must have recourse to the alternate, or even simultaneous, employment of the most opposite remedies.

During the prevalence of the Brunonian doctrine, it was considered, both by its proselytes and opponents, to be quite unscientific to employ at the same time antiphlogistic and stimulating means. But this precept proceeded upon a very partial and limited view of the subject, for it is evident, that venesection, for example, and alcohol, are by no means strictly antagonist powers, and that in many cases it may be advantageous at the same time to diminish the quantity of circulating fluid, and to excite the living solid to greater action. Accordingly, abundant experience has left no doubt

that excellent effects have often been produced by combining the depletory with the cordial treatment, and, in many cases, a mixed treatment will be found the most beneficial.

Hitherto I have considered the debility we have to combat, as the effect of preceding excitement exhausting the powers of life; but, in the very worst cases, no symptom of excitement precedes the appearance of extreme debility, which may thus be considered as primary. It may be said, that in such cases, the cause, whatever it may be, has operated on the constitution as a direct sedative, reducing its powers, and rendering them incapable of reaction. But this explanation is equally inconsistent with facts; for if the patient survive a certain length of time, this state of debility and depression is succeeded by a very high, but peculiar, state of excitement, producing in its turn true exhaustion, and often irrecoverable debility. In fact, the state of excitement in every inflammatory disease is preceded by a state of depression. This is universally acknowledged, and, *post horrorem*, forms a part of every definition of febrile diseases, but still the importance of the cold fit has not been sufficiently appreciated, except in the case of ague. It must, however, be admitted, that in the pure *phlegmasiæ*, the cold stage is short and transient, and the hot stage long and durable. Hence our treatment is chiefly, or almost solely, adapted to the state of excitement. But it appears to me, that the malignant form of all inflammations, such as occurs in some instances

of diffuse cellular inflammation, commences with an intense and long continued cold stage, in which the patient may be carried off before reaction is established.

According to this view of the disease, we should treat those malignant cases, which begin with the symptoms of extreme debility, on the same principles that malignant intermittents are treated during their dangerous cold stage; that is, we should administer diffusible stimuli freely until the commencement of reaction, when the antiphlogistic treatment should be vigorously enforced.